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# An Address
ON
# PLEURISY: ITS PATHOLOGY, DIAGNOSIS, AND TREATMENT.

*Delivered at the Gloucester General Infirmary on May 18th, 1905,*

BY NORMAN MOORE, M.D. CANTAB., F.R.C.P. LOND.,
PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

GENTLEMEN,—In my wards at St. Bartholomew's Hospital I have had during the present month eight cases of pleurisy.

CASE 1.—The patient, a strong-looking man, aged 23 years, was admitted on April 25th, with pain on the left side, a short cough causing pain on that side, and shortness of breath on moving his body. Fourteen days before admission he had been seized with pain in the side and cough, and four days before admission he became very short of breath. His left chest when I first saw him was dull except a small apical region. There were no vocal vibrations, no breathing sounds, and no movement on the left side: 90 ounces of clear fluid were withdrawn from his left pleura. His temperature had been raised but remained normal after the paracentesis. The next day a friction sound was audible and some vocal vibrations were present. On May 15th breathing sounds were faintly audible at the left base and no friction sound could be heard.

CASE 2.—This patient was received into the same ward as the previous patient. He was a muscular seaman, aged 25 years, and had signs of pleurisy on his left side. He had had pneumonia three months before. On April 25th he suddenly fell ill and went to bed with a cough causing pain in his left side. The pleural physical signs did not increase and on the next day he had bronchial breathing over the lower lobe of the lung, with increased vocal vibrations. The aspect of the case was that of pneumonia and not of pleurisy. On the sixth day his temperature fell to below normal and the physical signs gradually disappeared afterwards. His arms were tattooed in red and blue—a butterfly, the Royal standard, and a girl's head in a circle of leaves. The work was artistic and had been done in Hong-Kong, where he had been for three years and eight months, returning in November, 1903. The finest tattooing we see in St. Bartholomew's Hospital is that of Japan—delicately drawn butterflies and storks on the wing as good as those of porcelain. That of China comes next and then the Burmese work, often lizards and figures of Buddha and elephants, as well as regimental badges. That done in Hindostan is generally, like native art, slightly altered for the worse by a tendency to imitate European work and resembles in its want of grace the portraits of British officers by native artists which used to be sent home in the days of the East India Company. The tattooing of Malta has less merit still and that of our own ports and camps is the rudest of all.

CASE 3.—The third patient was a carpenter, aged 32 years, from whose chest on the day of his admission 30 ounces of clear fluid were withdrawn by paracentesis. He was admitted with pain in the left side and shortness of breath. The pain had come on suddenly on April 5th and his breath had since grown more and more short while the pain continued. Ten years before he had had pleurisy. His temperature was 100° F. The impulse of the heart was chiefly to be felt to the right of the sternum. There was dulness to the level of the third rib before and behind on the left side, with impaired movement and absence of vocal vibrations. Three days after tapping bronchial breathing was heard over part of the dull area, which had nearly, but not quite, disappeared a fortnight later and had quite disappeared in a further week. A month after admission breathing was still feebler on the left side than on the right and there was very slight general impairment of resonance on the left side. The temperature after an evening rise to from 99° to 99·5° became normal three weeks after admission and throughout had no sudden fall. The improvement after the paracentesis was marked.

CASE 4.—The patient, a man, aged 50 years, had a not very distinct pleural creak at his right apex behind and in front well-marked signs of a cavity. He had double aortic disease. He was admitted with a copious hæmoptysis, had several attacks in the ward, ceased to spit blood after a time, and then again had a recurring hæmoptysis in a copious access of which he died. Post mortem old pleural adhesions over a tuberculous lung with a large apical cavity were found.

CASE 5.—The patient, a stonemason, aged 23 years, was admitted with severe pain in the right side. Two days before he had had a severe rigor, felt very ill, and had pain in the side. His temperature was 103·8° F. and his pulse was full and bounding. He had some cough and scanty watery sputa. In the right axilla and at the base a loud friction sound was to be heard. No bronchial breathing was heard and no rusty sputa appeared. The temperature fell gradually through five days; in the first 24 hours of descent from 104° to 101°. The patient had obvious general emphysema and said that he had had a cough on and off for years.

CASE 6.—In my female ward a patient, aged 38 years, obviously the subject of advanced pulmonary tuberculosis, has a cavity at the left apex with a friction sound over the lower lobe behind, and is another example of pleurisy associated with tuberculosis.

CASE 7.—The seventh patient was an infant, aged 15 months, from the left side of whose chest ten ounces of pus were withdrawn. The prominent symptom was shortness of breath. The lower three-fourths of the child's left back were absolutely dull but a puncture made before admission had failed to demonstrate the presence of pus. The evening temperature was 101° F. Above the angle of the scapula loud bronchial breathing was to be heard behind and over the whole apex in front. The child was so much exhausted that I thought it well merely to feed it from April 7th to 17th and then drew off two ounces of thick pus. The child slept better but the physical signs were scarcely altered. The temperature fell to 99·5° each evening. The sense of resistance on percussion seemed to me increased by the 20th, and on the 22nd as it did not alter I had a rib resected when eight ounces of pus were withdrawn. The breathing sounds became audible, the child regained strength and colour, and the temperature gradually became normal.

CASE 8.—A boy, aged five years, was the eighth patient. He was admitted on March 28th with whooping-cough which he had had since the end of January. The cough was severe, there were many attacks every day, and each was prolonged. After these had moderated, but while they were still numerous (18 a day) a patch of absolute dulness was found at the right base on April 10th. This persisted and I arrived at the conclusion that it was an empyema but postponed an operation till the cough should be less frequent. The patient coughed up a quantity of pure airless pus and the physical signs in two hours were almost normal. For four days a little more pus came up and then no more. Great improvement took place and he is now convalescent. An empyema had pointed into the lung and had been coughed up.

These eight cases present considerable variety and suggest several points for consideration. Why, in the first, a week after the paracentesis, though no fresh fluid was exuded, were the breath sounds still faint over the lower half of the left lung? In the second case, had the attack of pneumonia three months before any relation to pleurisy and pneumonia which came under my care? In the third case, had the pleurisy of ten years before any relation to the attack I have described? How much of the results of the physical examination ought to be set down to the new and how much to the remote attack of pleurisy? In the fourth case, the firmness of the apical adhesions indicated the long duration of tubercle there. In the fifth, why was the temperature so high while the gradual and not sudden fall, the absence of rusty sputum and of bronchial breathing seemed to prove that a true pneumonia was not present? In the sixth, as in the fourth case, the connexion between the tubercle in the lung and the pleural adhesion outside it was plain. What was the explanation of the pus in the seventh case? Did the bronchial breathing indicate that a pneumonia had preceded the empyema? What in the case of whooping-cough was the origin of the pus?

Many other clinical varieties of pleurisy may be observed. A patient of mine with locomotor ataxy became much worse in appearance and very short of breath but without

pain. Was this due to cardiac degeneration—he had some signs of aortic disease—or to some other cause? The whole left side of his chest was full of clear fluid. It was let out and a second time tapped. He was in a condition of extreme malnutrition, such as is sometimes the last stage of locomotor ataxy, and after some weeks died. The necropsy showed that he had a true pleurisy with abundant flaky deposit as well as clear fluid, such as would have been painful but for his posterior sclerosis. There was some old calcareous tubercle in his left lung but no recent tubercle was found. A woman, aged 35 years, had absolute dulness over the left side except at a small part of the apex and at the base. The dulness extended to the base in a fortnight but the lower three inches gave a different resistance on percussion, though the absence of resonance was general. This was a dense mediastinal sarcoma extending into the left pleura with a very small effusion into the lowest part of the left pleural sac. A case of probable actinomycosis on the under side of the diaphragm associated with a very small effusion and pleural roughening above it and one of hydatid between the upper and lower lobes of the left lung causing signs indistinguishable from a simple pleurisy are rarer examples which have occurred in my wards.

The experience of my hearers will, I am sure, easily suggest many further variations in detail. This month I saw in the post-mortem room a condition with which I was unfamiliar. It was a left pleural sac, greatly thickened and full of turbid fluid, containing a calcareous deposit as if the whole pleura were one old softened lymphatic gland. The patient was known to have had a pleural effusion for ten years. I wish to add one more rare case. A young man in my ward at St. Bartholomew's Hospital had a patch of dulness at the left base behind with absence of breathing. His temperature was but little raised. He said that his first symptoms began after a sudden exertion and when I chanced to asked if he had anything in his mouth at the time he said, "Yes, a short piece of straw with an ear on it." That disappeared and he thought that he might have dropped it or have breathed it in. The latter proved to be the case. The ear of straw had penetrated the lung and entered the pleural sac and caused an empyema. One day in a violent fit of coughing up came an ear of barley and about four ounces of pus. The patient recovered rapidly. His case was a demonstration of the relation of pleurisy to the outside world.

Let me next set before you a few passages from books. The first is from the most famous physician of ancient Rome. In the treatise "De Locis Affectis" Galen, speaking of pleurisy, says:—

> And this has for its inseparable symptoms an acute fever, a pain as if the parts were overstretched or pricked; the breathing little and frequent; the pulse small; and the artery in a peculiar manner tense and commonly hard. A cough also most commonly accompanies it with a coloured sputum but sometimes without sputum. Such are pleurisies which either carry a man off quickly or come to an end after a long period of time.

The next is from the "Phthisiologia" of Richard Morton, a Doctor of Medicine of Oxford and a Censor in the College of Physicians, who lived close to St. Bartholomew's Hospital in the reigns of Charles II., James II., and William III., and is buried in Christ Church, Newgate-street. There are few collections of cases better worth reading than his.

> A certain youth, living near Cripplegate, in good health and with his viscera certainly sound, whilst at work at his handicraft of a plasterer, by which he earned a comfortable living, by bad luck dropped three nails, which he held in his mouth to use, down his trachea into his lungs. In consequence of which after violent coughing and constant irritation he had a profuse hæmoptysis. From which symptoms I do not know how he at length recovered. It is quite certain that the nails were not coughed up. The youth nevertheless for many months was in good health and worked at his trade as before. He did not feel changed in any way for the worse except that from that time forth he had a dry hollow cough and some sense of oppression, neither troubling him much. He believed himself so well that he thought himself fit to take a wife and was married. On the wedding day, whether from more free drinking of wine than usual or from dancing too much (whence the nails, which before lay as if buried, fixed in the substance of the lungs, were moved anew), the unfortunate bridegroom towards evening was seized with dreadful spasms and most acute pain of chest and side with difficult breathing and a dry but very violent cough so that he could not lie down on his bed or take the least sleep. Thus at last he became feverish and seemed to shiver owing to the urgent spasm of the pain. All the remedies of old wives and drug compounders having been tried in vain I was implored on the third day of the illness to come to him. I at once saw that the disease was peri-pneumonic in its nature and I prescribed free bleeding, fomentations and liniments externally, and internally a linctus and pectoral apozem and julep in the antispasmodic waters. These doing little I ordered bleeding again and again. I tried a variety of internal and external remedies before I relieved the wretched patient in the least. The pain being a little relieved I was unable to check the cough and expectoration or to reduce the fever and it seemed to turn from an acute pneumonic fever into a hectic fever. At last from the urgency of the symptoms the patient was relieved and though always feverish could sleep and take food better than before but his strength declined and in a month or five weeks he ended his life obviously in a state of phthisis. When his body was opened after death we found those fatal nails as if buried in a bed of pus a little below the division of the bronchi and the pleura as it were corroded by pus. I drew off six pints, if I remember right, of this purulent fluid.

Galen it is obvious had observed, as his note of the sputum shows, cases of pleuro-pneumonia in which the prominent symptoms pointed to the pleura. Morton's case shows how an empyema was produced by the passage of foreign bodies from the lung into the pleural cavity.

The explanations of disease and the general pathological theory have changed so much that it often requires a special study before one can be certain what was meant by the hypotheses of old medical writers but their descriptions of cases have often a higher and permanent value. The difficulties of interpreting them are the same as those of the interpretation of cases at the bedside and hence their consideration is a mental exercise of practical value in our training as observers of disease. Books such as Morton's "Phthisiologia," the "Observationes Medicæ" of Nicholas Tulpius, Wepfer's "Observationes Anatomicæ," Morgagni "De Sedibus et Causis Morborum," Diemerbroek's "De Peste," Andral's "Clinique Médicale," as well as many other writings of less famous authors repay perusal as collections of problems similar in kind to those which we have to try to solve every day. Every man who has published faithfully described cases of disease from his own observation has made a contribution which has a permanent value in medicine.

In the clinical study of a case of disease that endeavour to make out what is taking place in the patient which is our daily work and on our success in which the usefulness of our treatment must depend, there are three stores of knowledge in our minds to which we turn for help, after collecting all the information which can be obtained from the physical examination, the symptoms, and the history of the patient. These are our recollections of cases which we have seen, of cases of which we have read, and of post-mortem examinations.

In this discussion of pleurisy I have dealt with the first two groups and I will now proceed to the third, the collection of facts from the post-mortem room and the laboratory. Dr. S. J. Gee, one of the last writers on pleurisy, in his definition says: "For the last century or more pleurisy has been defined to mean inflammation of the pleural membrane." In what conditions do we meet with this inflammation of the pleural membrane in the post-mortem room? First of all, in every condition in which the lung or a part of it is solid. In lobar pneumonia (pneumococcal) it is always present—every such pneumonia is a pleuro-pneumonia. Pneumococci are present in the lung and in the pleura; leucocytes which solidify the air vesicles are also present in the pleural sac. Tuberculosis, according to the degree of infiltration, is present in both lung and pleura. Pneumonia of diphtheria presents so precisely the appearances, including the pleural roughening, of lobar pneumonia that till the late Professor Kanthack demonstrated its bacterial nature it was supposed to be the same disease. Yet the presence of Klebs-Löffler bacillus establishes its specific character. Pneumonia of pyæmia occurs with streptococci which are also present in the pleura. Pneumonia of plague also occurs in which the cause of consolidation is the bacillus pestis. I have brought with me a specimen recently added to the museum of St. Bartholomew's Hospital—the lung from a case of plague showing the presence of pleurisy. The lung is quite solid; the pleural deposit, though scanty, is obvious on its surface. I cannot avoid dwelling for a little on the reflections which this specimen suggests. 20 years ago to study the plague was to study an obsolete disease. I remember reading in 1889 a chronicle, then printed for the first time, which the editor, Sir Edward Maunde Thompson, had been so good as to give me. The chronicle was written in the reign of Edward III. by Geoffrey le Baker of Swinbrook, an Oxfordshire clergyman, and as a physician the account of the most severe English epidemic of plague struck me. I may venture to read it to you, especially as it mentions Gloucester.

> In the year of Christ, 1349, in the twenty-third year of the King's reign, a general plague spreading from the east of the Indians and Turks infecting a half of our inhabited world, carried off with such loss of life Saracens, Turks, Syrians, Palestinians, and, finally, Greeks, that, driven to it by terror, they decided to accept the faith and the sacraments of Christ, hearing that death did not affright the Christians on this side of the Greek sea more frequently than usual. At length the cruel devastation passing in succession the parts beyond the Alps

and from there to the west of France and Germany in the seventh year after its outbreak arrived in England. And at first it carried off almost all the inhabitants of the seaports in Dorset, and then those living inward, and thence it ravaged Devon and Somerset as far as Bristol, so that the men of Gloucester refused those of Bristol entrance to their country, everyone thinking that the breath of those who lived amongst people who died of plague was infectious. But at last it attacked Gloucester, yea and Oxford and London, and, finally, the whole of England so violently that scarcely one in ten of either sex was left alive. As the graveyards did not suffice fields were chosen for the burial of the dead. The Bishop of London bought the croft in London called "No Man's Land" and the Lord Walter de Magne (Sir Walter Manny) that which is called "The New Church Haw," where he founded a house of persons in religion to bury the dead. All pleas in the King's Bench and Common pleas of necessity were stopped. Very few great men died of it. Among them were Lord John of Montgomerie, Captain of Calais, and the Lord of Clistele; they died in Calais and were buried in London in the church of the Brethren of the Blessed Mary of Mount Carmel. A countless number of common people and a host of monks and nuns and clerics as well, known to God alone, passed away. It was the young and strong that the plague chiefly attacked. The old and feeble it generally spared. Scarcely anyone dared to touch the sick; the healthy fled from what the dead left behind, however valuable, as surely infectious. One day men were quite well and on the morrow they were found dead. Abscesses suddenly breaking out in different parts of the body tortured them; they were so hard and dry that when they were cut hardly any fluid flowed from them; many persons got over them by means of incision or by long patience. Others had small black pustules spread all over the skin, and of these very few, nay rather scarcely one, recovered. This great pestilence, which began at Bristol on the Feast of the Assumption of the glorious Virgin (August 15) and in London about the Feast of St. Michael, raged for a whole year in England so terribly that it cleared many country villages completely of every "individual of the human race."

The plague of 1348–49 in England was part of the greatest epidemic which is known in history. It reached Europe from the East by way of Constantinople. The cities of Europe were then much smaller than now, yet 100,000 died from plague in London and 100,000 in Venice, 50,000 in Paris, and 60,000 in Avignon, and so on all over Europe. It lasted a shorter time than the epidemic of the sixth century, which began about 542 and lasted for 52 years, but it was more severe while it lasted. It was followed in England by many more epidemics till that of London in 1665, of which we have all heard. Except a very few isolated cases up to 1679 no more was heard of plague in England till September, 1896, when two cases appeared on a ship from India in the Thames. Since that time other cases have appeared at Glasgow, at Liverpool, and at Leith, but the epidemic has been steadily progressing in India. 30,000 died in the first year (1896) and this year the same number or more have died in a week for many weeks in succession. In 1904 1,040,000 died. This year, from Jan. 1st to April 1st, 474,744 died and in the month of April 215,961. These nine years of steady increase till numbers greater than those of any previous epidemic, except that of 1348–49, have been reached, make it likely that this epidemic will spread further and it may not improbably attain considerable proportions in Europe.

It is certainly our duty to become acquainted with the symptoms, to understand what is known of the presence of the disease in rats and its being spread by them, to study the method of progress of plague epidemics, and even to know the look of the bacillus. The admirable "Treatise on Plague," by Dr. W. J. R. Simpson, lately published by the Cambridge University Press, contains more information than any other book on the plague. Such a book as Isbrand de Diemerbroek's "De Peste," published in 1646, contains numerous cases simply told and gives a good idea of what may possibly be seen again in some parts of Europe or even in the British Islands, but Dr. Simpson has treated every part of the subject in the fullest way and brings to bear upon records and reports a large personal experience of plague in India, China, and Africa. His book is most interesting and valuable reading on a subject on which, I think, we all ought to know something in view of the vast proportions to which the Indian epidemic has already attained and the scattered cases which have already appeared on our own shores.

To return to pleurisy from this digression on the plague: lobar pneumonia, tuberculosis, pneumonia of diphtheria, pneumonia of pyæmia, and pneumonia of plague, in all of these the whole or part of the lung seems stuffed with the results of the development of micro-organisms but pleurisy of the same nature as the change within the lung is often to be found in broncho-pneumonia and even over very small patches of it if near the surface of the lung. In hæmorrhagic infarction of the lung and in cases of new growth in the lung pleurisy is always present. Here probably the interference with the nutrition of the serous membrane is so serious that organisms which would otherwise be breathed out of the lung without settling anywhere find their way through into the pleura and so produce pleurisy. Thus it is easy to see that in each variety the pleura is reached through the respiratory tract. The pneumococcus, the tubercle bacillus, the Klebs-Löffler bacillus, the streptococcus, the plague bacillus may as easily be perceived to have passed from the lung to the pleura as the ear of barley in my patient or the nails in Morton's plasterer. If broncho-pneumonia is extensive there is always some pleurisy; if it is slight there is none; the conclusion that the pleural colony of organisms originates from the intrapulmonary settlement is obvious. Pleurisy with large clear effusion like that of the first case I mentioned in this address, how is it—the simple pleurisy as some would call it—to be explained? Assuredly by a similar invasion of the pleura from the respiratory tract.

What truth is there in the eight aphorism of the fifth book of Hippocrates? "When in pleurisy the chest does not become free from fluid in 14 days an empyema is formed." It is undoubtedly true that the longer a patient has had a pleural effusion the more likely it is to be purulent. The vitality of the serous membrane is diminished, its obstructive power is lessened, and organisms pass more and more freely from the lung into the pleura. Thus the aphorism has a basis of truth, but how about those cases of empyema common in children and occurring, though less often, in adults in which an empyema is clearly of only a few days' duration? A large proportion of these, like that of the seventh case which I described, will be found to have followed a lobar pneumonia of greater or less extent and some are, of course, associated with tubercle.

Here I ought to note that lobar pneumonia in children is often certainly present though no absolute dulness can be discovered and no bronchial breathing heard. One listens day after day expecting physical signs and sputa are not to be expected in a child. The temperature continues high and the breathing rapid. It is impossible to clear the mind from some anxiety lest the case should prove to be one of miliary tuberculosis—in which physical signs are often long in appearing—but on the sixth or seventh day the temperature falls in a few hours to below normal and does not rise again permanently, though sometimes ascending a degree or two on the next day, and the acute condition is past—the case was one of lobar pneumonia. The physician in the times before Laennec would have made the diagnosis of pneumonia (peri-pneumonia as they called it then) without hesitation. Our accurate method of observation by percussion and auscultation makes us doubt in our interpretation of the general aspect of the case. We are right to hold judgment in suspense but are reminded that diagnosis where the lungs are concerned should never be made upon physical signs alone but should be the result of a full consideration, not only of the physical signs but with them, of the patient's general symptoms, in which I include any laboratory observations that can be made, of the history of his illness, and of his own history.

Tubercle most often reaches the pleura from the lung but sometimes seems to find its way from the abdomen, perhaps directly through the diaphragm. A girl, aged four years, was admitted into my ward on June 13th, 1904. She had had measles and whooping-cough at the age of two years. In January, 1904, her abdomen began to swell and in April she had wasted a good deal. On admission the physical signs in her chest were normal; it was repeatedly examined for several months and they continued so. Her abdomen was greatly distended with fluid and measured 24 inches at the umbilicus. On July 5th the swelling had increased and 3 pints 16 ounces of fluid were let out by paracentesis. On July 17th the girth was 27 inches and 5 pints 4 ounces were let out and on Sept. 9th six pints. Laparotomy was then performed by my colleague, Mr. W. MacAdam Eccles. Much fluid was let out and in the right iliac region a large mass of tuberculous glands was found. The disease was undoubtedly tuberculous peritonitis. The distension returned and on Oct. 14th 7 pints 15 ounces of greenish fluid were removed by paracentesis. The child after tapping seemed fairly well, ate well and slept well, and there were no physical signs of disease in the lungs. On Dec. 2nd five pints were removed and on the 22nd six pints. On Jan 16th, 1905, 5 pints 14 ounces were removed. Scattered subcrepitant râles were now audible at the left base—none on the left side. On Feb. 13th 4 pints 14 ounces were withdrawn by paracentesis. On March 2nd a well-marked friction sound was heard in front below the fourth

rib and in the right axilla. Breathing sounds were feeble. The friction sound continued. On April 1st paracentesis was again performed and six pints were removed. On April 6th the friction sound was audible over nearly the whole right front of the chest. On April 20th five pints were removed from the abdomen. Friction over the right chest was plain. Bronchial breathing and bronchophony were now to be heard at the right apex behind. From about the middle of March, but not until then, the child seemed going downhill. From Sept. 24th to March 14th the temperature was generally normal or subnormal; after that it often reached 100° or 101° F. It was twice 102° during six weeks and then generally 101° and once 103° during the last fortnight of her life, which ended on May 8th. The post-mortem examination showed extensive tuberculous peritonitis, tuberculous pericarditis, and tuberculous pleurisy on the right side. The lungs contained no tubercle. In this case, therefore, the right pleura seems to have been directly infected from the peritoneum and the pericardium probably from it. The observations of this progress made during life were confirmed post mortem.

Another case of pneumococcal infection was that of a child, aged 11 months, who was admitted in a collapsed state into one of my wards this week and who sank rapidly. A part of the upper lobe of the left lung was solidified and on its pleural surface there was a fine granular deposit. The pericardium was coated with an abundant deposit of lymph and the pericarditis was proved to be pneumococcal. Here it is probable that the infection was from the lung to the pericardium. Vomiting and diarrhœa were present but no evidence of infection in or around the alimentary canal was discoverable. I have placed on the table specimens from this case, the lung and the heart.

The pathological conclusion which I wish to draw is that, excluding traumatic cases, we are to think of pleurisy as an indication of some general morbid condition, and most often of some bacillary infection, and not to imagine that it is a mere affection of the pleura. Have we, in one case, to deal with a manifestation of tuberculosis at a stage when, if recognised, treatment is almost certain to be curative? This may be so not only in the empyemata of children but also in pleurisies of young adults with clear fluid.

The pain in the side which has long been observed, perhaps even before Laennec and auscultation, as a sign preceding the full development of phthisis is a pleurisy, but generally one associated with a permanent tuberculous settlement in the lung and with adhesion. When we find a localised friction sound continuing for many weeks without much advance such tuberculous pleurisy is sure to occur to us, though I remember a promising physician and medical teacher whose life might have been saved had he accepted the view that this was the true nature of a local pleurisy which during several months now and then interfered with his work. A pleurisy with a large clear effusion which is probably rapidly relieved by paracentesis is often dismissed without a thought of tuberculosis.

The conclusion of my observations on the pathology of pleurisy is that we are to take the symptoms and physical signs of pleurisy as evidence of the existence of a condition affecting an important area of the respiratory tract and not merely the covering of the lung.

The diagnosis of pleurisy seems simple: the physical signs—dulness on percussion, immobility, absence of vocal vibrations, and absence of breathing sounds—are well known to everyone; the symptoms—pain on coughing or drawing breath, a marked decubitus sometimes on the affected and sometimes on the unaffected side but generally marked, and rise of temperature—are plain enough, yet I remember a very acute physician saying that he was inclined to estimate the clinical merit of his house physicians by the number of times they did not fail to recognise empyema in children and the number of cases in which it is difficult to be quite certain that a pleurisy is not present or that it is are many. As regards adults I believe the method likely to lead to fewest errors is to begin with the symptoms. The aphorism of Boerhaave (875) is at once an admirable example of his lucidity of statement and a complete collection of the important symptoms of pleurisy.

> A pleurisy is said to be present when a person labours under an acute continual fever with a hard pulse and a sharp pricking inflammatory pain in the side which greatly increases in the act of inspiration, but abates in expiration, or by holding the breath; also becomes milder when the breathing is performed by the abdomen chiefly, without moving the breast; there is likewise a cough, which is almost incessant, and which exciting great pain is therefore stifled or suppressed by the patient.

The severity of the pain and the way it is produced are striking. The suddenness of its onset is often remarkable. Juvenal says people used to attribute it to the blow of a stone or a dart cast by the gods at the sufferer.

> Præterea lateris vigili cum febre dolorem
> Si coepere pati, missum ad sua corpora morbum
> Infesto credunt a numine: saxa deorum
> Haec et tela putant.

The pain of herpes zoster is as great but it is not made worse by drawing breath and in most cases its onset is less sudden. It is generally preceded by some irritation or uneasiness in the affected area.

The intense cardiac pain which sometimes occurs in children with valvular disease in whom there is no direct evidence of pericarditis or proof of pericardial adhesion, extending as it does over a surface corresponding to a considerable part of the chest wall, may sometimes seem difficult to distinguish from the pain of pleurisy. It often lasts long enough to be more than a mere spasm. A boy, aged seven years, lately in one of my wards had after rheumatic fever with severe endocarditis many such attacks which were sometimes prolonged for half an hour. He was first uneasy, then screamed aloud with pain, and seemed throughout in the greatest distress. After many weeks he ceased to have any more such attacks and was able to go to a convalescent home, with valvular disease but without distress and in fair general condition. In such a case the position of the patient sitting up and leaning forward is unlike that assumed when pleural pain is severe and prolonged observation will always enable one to be sure that the distress has to do with the heart and not with the lungs.

It has often been observed that the onset of the disease is more violent, the rigors more severe, and the temperature higher in lobar pneumonia than in cases of pleurisy even with large effusion. While in lobar pneumonia on the first day the temperature may rise to 103° or even to 104° in a pleurisy it may often not rise much above 101° with a corresponding diminution of general disturbance. Such were the conditions in the first of the cases I described at the beginning of this address. The infection in lobar pneumonia and in such pleurisy is yet in many cases undoubtedly the same. I believe that the cause of the difference is the strength of the infection; the numbers of the force of bacilli which is established in the respiratory tract. Cases of pleurisy now and then occur in adults in which, though no lobar pneumonia is discovered, the onset is severe and the rise of temperature great but in most such cases the pneumococcus is abundant in the lung as well as in the pleura. The pneumococci, as also tubercle bacilli, are difficult to discover in a copious serous effusion and they live with difficulty there, so that there is no such marked change of temperature or crisis when their development comes to an end. This is at least a plausible explanation of the difference in the clinical phenomena of lobar pneumonia and pleurisy not incompatible with the fact that both are the result of pneumococcal infection.

The cough is a symptom often little noticed in simple pleurisy; the patient tries to suppress it in order to avoid pain and the medical attendant concentrates his observation on the relief of the pain. Yet sputa are generally present, however scanty, and aid the differentiation of pleurisy from lobar pleuro-pneumonia. The expression "a dry pleurisy" conveys often the idea that a pleurisy with effusion of lymph but without fluid as well is present, but the expression was used long before the presence or absence of fluid could be proved by percussion and auscultation and referred to the presence or absence of sputa. Boerhaave, in his 867th aphorism, says: "Whenever, with these symptoms, there are also incidental or symptomatic spittings from the lungs, the pleurisy is then said to be *humid* or *humoral*, but when discharges by spitting are absent it is then termed *dry*." As to the physical signs, where a great deal of lymph is present and little fluid, bronchial breathing may be heard and vocal vibrations be felt, as I learned in the case of a man at St. Bartholomew's Hospital who died soon after admission and whose physical signs thus pointed to lobar pneumonia, though no pneumonia and only pleurisy was present.

The aspirating needle does not always convey the truth. A patient in St. Bartholomew's Hospital had complete dulness up to the third rib on the right side and some depression of the liver. She was tapped in the fourth interspace and three pints of pus let out. She sank rapidly—it was a huge hepatic abscess which had been tapped. A child had signs of pleurisy on the left side and was tapped and

pus let out. At the end of a week it died. The trocar had reached a purulent pericardial effusion but a contemporaneous empyema at the base surrounded by adhesions had been passed over and remained undrained. An effusion containing blood is generally present in diffuse pleural new growth but blood is occasionally present in pleurisy without new growth and may depend on some special form of infection.

The diagnosis of pleurisy consists of two important parts—the determination of the situation and physical effects of the effusion, which may vary from a little roughening on a small area of lung surface to several pints of pus, and the determination of the nature of the infection. Both parts of the diagnosis present many difficulties and both should be fully considered in every case.

The treatment of pleurisy may seem to be a subject on which nothing new can be said, yet the difficulties are not few. In the seventeenth and eighteenth centuries everyone except the rash and presumptuous Van Helmont agreed that the patient must be bled but there was much controversy as to whether the vein ought to be opened in the arm of the affected side or of the opposite side. Hippocrates, Galen, and Celsus were said to recommend the affected side; Aretæus, Ætius, and Cœlius Aurelianus were of the contrary opinion. For over 800 years, between the eighth century and the beginning of the sixteenth, or, to put it in another way, during the whole period in which the "Continent," or "Hiber Elhavi," of Muhammad Ibn Zachariah el Rázi, more often called, Abu Bekr or Rhases, was a text-book of authority, it was almost the invariable practice of physicians to have the patient bled from the arm of the opposite side to that on which the pain was. Then came the revival of learning which opened so many books of the ancient world to the West. Homer was printed at Florence and all the treasures of Greek philosophy and literature were placed before men—Plato, and the tragedians, and Thucydides and the true texts of Hippocrates and of Galen; and amidst these great contributions to the intellectual advantages of all Europe it was discovered that Galen advised bleeding from the arm of the affected side. Dr. Peter Brissot in Paris, early in the reign of our Henry VIII., pointed this out in lectures, used it, as is said, with advantage, and persuaded many physicians to adopt the method of Galen. The reform spread to Portugal but met with opposition and the discussion extending to Spain was carried on in the University of Salamanca which decided against Galen's view. Charles V. was asked to forbid as king and emperor the practice of bleeding on the affected side. For nearly 200 years the controversy continued and probably traces of it may be found in medical writings or in popular belief up to the time when, to the great advantage of patients, bleeding was altogether given up in pleurisy.

In the very earliest times, however, we find that a form of treatment which persists to this day was in use: the application, namely, of warm fomentations to the painful side. Hippocrates recommends a bladder containing hot water or a warm sponge or bags containing heated bran or barley meal moistened with vinegar.

The island of St. Bartholomew, in the Tiber, where now stands the church of St. Bartholomew, was once occupied by a temple of Æsculapius, the monolithic pillars of which are now those of the church, a building of which the tower belongs to the eleventh century. Here, as Hieronymus Mercurialis states in the first book of his "De Arte Gymnastica" (Book I., cap. i.), published in 1573, a marble tablet was found with a Greek inscription relating how one Luke, having a severe pleurisy, was advised in the Temple of Æsculapius to take ashes from the altar, to mix them with wine, and to apply them to the painful side, a course which he followed and was cured and so put up this clinical record and received public congratulation. External applications are a better way of relieving the pain, in my opinion, than the use of morphine and if skilfully applied seldom fail to do so quickly.

Paracentesis is now universally practised in England but there are several matters in connexion with it which deserve a good deal of consideration. To begin with, what danger is there from a large non-purulent effusion? The danger judged in the light of experience seems rather to be expected than to occur. I have only known one death directly due to a large non-purulent effusion. The patient was a man with aneurysm of the aorta who had been kept on his back for some three months. One afternoon he suddenly sat up in bed and almost immediately died. It was naturally imagined that his aneurysm had burst within his chest. The necropsy showed that this was not the case and that he had a large unsuspected clear effusion into his left pleura and that the sudden change of position was the probable explanation of his death. On the other hand, I remember a woman who with five pints of fluid in the right pleural cavity walked to the top of a lofty staircase without injury. The long time which often elapses before the breathing sounds and the percussion note are normal on the affected side in cases of pleurisy of short duration with clear effusion suggests that a more real danger is the permanent binding down of the lung or its collapse. Such collapse when complete constitutes a most serious and long-continued danger to the patient. His pleura may become a huge abscess sac, as in the case of the chalky effusion already mentioned. Another example was that of a private in the Guards, aged 24 years, whom I had under my care and who had had such a sac for about seven months before admission to the hospital. His lung was completely airless, bound up against the vertebræ near the root. He died exhausted after an operation for his relief. A man, aged 22 years, after an attack of pleurisy expectorated in the last week of May, 1892, a pint of pus. This was immediately followed by left pneumothorax but after resection of the tenth left rib he recovered with a good deal of contraction of the side.

The case of Frederick Prince of Wales, son of George II., as it is related in the diary of his friend, Lord Melcombe Regis, illustrates another danger associated with empyema, suffocation, after it has burst into the lung.

> Mar. 6. Went to Leicester House, where the Prince told me he had catched cold, the day before, at Kew, and had been blooded. 8. The Prince not recovered. Our passing the next week at Kew put off. 10. At Leicester House. The Prince was better, and saw company. 13. At Leicester House. The Prince did not appear, having a return of pain in his side. 14. At Leicester House. The Prince asleep—twice blooded, and with a blister on his back, as also on both legs that night. 15. The Prince had a plentiful evacuation, and was out of all danger. 16. The Prince without pain or fever. 17. Went twice to Leicester House. The Prince had a bad night, till one this morning, then was better, and continued so. 18. The Prince better and sat up half an hour. 20. Went to Leicester House; from thence to the House of Commons, and then to Hammersmith. I was told at Leicester House, at three o'clock, that the Prince was much better and had slept eight hours in the night before, while, I suppose, the mortification was forming; for he died this evening a quarter before ten o'clock, as I found by a letter from Mr. Breton at six o'clock the following morning. I came immediately to town and learned from Mr. Breton who was at Leicester House when the Prince died that for half an hour before he was very cheerful, asked to see some of his friends, eat some bread and butter, and drank coffee: he had spit for some days and was at once seized with a fit of coughing and spitting, which last was so violent, that it suffocated him. Lord North was sent to the King. This morning the King ordered the body to be opened; an abscess was found in his side, the breaking of which destroyed him.

A large clear effusion is best got rid of by paracentesis and if a second large effusion occur it should be let out and then generally the patient will recover. Now and then a third tapping is necessary. A man, aged 32 years, came under my care in St. Bartholomew's Hospital with a history of some signs of pleurisy for two months. The lower part of the right side was dull and 52 ounces of clear fluid were let out. In about five weeks the pleura again contained fluid; 84 ounces were let out and a fortnight later 75 ounces, and then there was no further effusion. He became convalescent and had no dyspnœa when he left.

Paracentesis is not always without dangers. A man in my ward at St. Bartholomew's Hospital, aged 59 years, who had a dense new growth in his liver, mesentery, pleuræ, and kidneys, and within his cranium (right frontal sinus) was tapped several times for ascites and after three months had a large effusion in the left pleura. His dyspnœa increased so much that paracentesis was performed in the ninth left intercostal space. A few ounces of clear serum came out followed by serum more and more blood-stained and then by pure blood. The cannula was withdrawn; a quarter of an hour later the patient's pulse was very feeble and grew worse and he died an hour later. The post-mortem examination showed that the intercostal artery in the ninth space had been punctured and the left pleura contained 20 ounces of blood clot and 36 ounces of dark blood-stained fluid and liquid blood. This is the only example of death from wounding of an intercostal artery in paracentesis thoracis which I have seen. Another death from hæmorrhage into the pleura was of a different kind. The patient was a carman, aged 28 years, who was admitted on Feb. 16th, 1905, and who had recently had pneumonia of the right lung. Nearly the whole right side was dull except the apical region. The patient looked extremely ill and his complexion was dusky. His temperature was never normal and every

evening rose to 101° or 102°. On Feb. 21st a drachm of pus containing diplococci (encapsuled) was withdrawn from the right axilla. Next day an inch of the sixth rib in the mid-axillary line was excised and two and a half pints of pus came out. More blood than usual appeared. On succeeding days the discharge was free but the temperature continued to be raised. On March 10th a piece of rib was excised in the post-axillary line to obtain better drainage. No further collection of pus was discovered. On March 15th much bleeding occurred and the openings were plugged with gauze. Whenever the plugging was removed bleeding took place. The patient also coughed up much bright-red blood. These conditions continued till March 26th when he died after a profuse hæmorrhage. The post-mortem examination showed that the hæmorrhage was from the lung which had broken down over a considerable surface and which was probably in a condition of necrosis when the empyema was first tapped.

With these rare examples I will conclude this collection of observations on pleurisy. As regards its pathology the propositions which I have endeavoured to maintain are the following. 1. That, apart from injuries, pleurisy is to be regarded as a part of a condition which has generally begun in the respiratory tract, but sometimes in the pericardium (especially in rheumatic fever), and now and then in the peritoneum, and that the origin ought always to be carefully investigated. 2. That empyema is a frequent result of lobar pneumonia and also of tubercle. 3. That large non-purulent effusions are due to pneumococcal or tuberculous affection. 4. That tubercle reaches the pleura from the lung in most cases and in a few from the peritoneum.

As regards diagnosis I wish chiefly to insist that it should take a wide survey of the origin of the disease and not be confined to the interpretation of physical signs. As regards treatment I agree with those who are in favour of letting out all large serous effusions and all empyemata and in the latter case I am more and more inclined to favour the method of resection of a piece of rib as procuring better drainage and therefore more speedy recovery.

There is another and more general principle of treatment which follows from what I have said as to the pathology and diagnosis of pleurisy. It is that the patient should be kept under observation till he may be considered free from the condition of which the pleurisy was the most prominent manifestation. It is in this direction of encouraging prolonged observation that we may expect modern pathology to affect treatment, greatly to the benefit of patients. Almost the only acute disease in which at present we keep patients long enough under control is enteric fever. In rheumatic fever I am convinced that rest in bed in all cases for from three to four weeks after the temperature is normal would lead to a diminished percentage of permanent valvular disease and that it is only by a prolonged temperature chart that we can arrive at certainty as to the cessation of the endocarditis. In pleurisy regulations as regards fresh air and diet followed out in all cases would often prevent the development of permanent tuberculosis later in life.

"Principiis obsta" is an often repeated exhortation. Every year of medical progress gives us more opportunities of applying it. Treatment is necessarily prolonged in the particular illness but attacks of illness may thus be made fewer in number and the melancholy end of the verse is never experienced—

"Sero medicina paratur,
Cum mala per longas convaluere moras."

## SOME NOTES ON PLAGUE.

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DURING the past few years I have come in contact with plague in nine different districts in India. Close on 3000 cases have come directly under my actual control and about another 5000 have come indirectly under my observation. This disease has so far baffled every effort to stamp it out. It has upset all laws that govern most diseases. It has shown a variability in type, in the manner of its rise and fall, and in its choice of climate and soil that no other disease can lay claim to.

Plague is caused by a specific micro-organism, the plague bacillus, which shows a pleomorphism unique amongst bacilli. This was discovered by Kitasato in 1894 and by Yersin about the same time. In young buboes it is found in almost pure culture, but as suppuration supervenes the bacillus begins to disappear and when suppuration is fully established the bacillus is seldom found. Personally I have never found it in fully suppurating buboes. This disappearance in the above circumstances is an interesting fact and will be dealt with subsequently. The bacillus is also found in the internal organs. Excluding the lymphatic system I find that it occurs in greatest numbers in the spleen, then the liver, the cavities of the heart, the lungs, and lastly the kidneys. In all types of the disease the spleen comes easily first. In pneumonic cases of course the lungs are highly congested and full of bacilli, but in other types the lungs are not infected to any great degree. In what has been called the "alimentary form" I have found the bile in the gall-bladder full of plague bacilli. Smears from the spleen or the liver show the bacillus in the form of a short organism with rounded ends; in the same smear one finds cocci and diplococci-like forms. Motility is a character that is denied this bacillus by many. My first note as to its motility was made in 1900. I have since that date examined so many specimens in which marked motility was present that I am certain that the plague bacillus does at times present this character. I say "at times," as it is not in every specimen that I have found motility. It is more noticeable in those cases which I mark fulminant, that is, which die within 24 hours from the onset. So far I have not succeeded in staining flagella. Smears from human organs do not show a bipolar staining of all the plague bacilli, but in rats dead from plague it is more usual to find the greater number of plague bacilli giving the bipolar character. Even this character, however, is not uniform, for bacilli are met with showing all degrees of polar areas. The bacillus does not stain when treated by Gram's method, whether it be taken from a bubo, from an internal organ, or from the blood.

Bitter places the plague bacillus amongst the "septicæmic group." Of the correctness of this there can be little doubt, I think. Septicæmic organisms have the following general characters. When a susceptible animal is inoculated with a minimum quantity of the bacterial culture the organism passes at once into the blood and commences to grow with great rapidity; it finds its pabulum there and it produces a septicæmia. At times inoculation does not result in an immediate invasion of the blood stream. The bacillus requires some foci in which to develop. From these foci the toxic products enter the blood and it is not until a few hours before death that the bacillus is found in the blood. This is really, first, a toxæmia. Examples are supplied by anthrax and by plague. There are all degrees of susceptibility. Commencing with the most susceptible animal, after inoculation of a minute quantity there is no local reaction and the bacillus seems to pass directly into the blood stream but a point is soon reached where a local reaction on the animal's part occurs. A battle takes place between the invading bacillus and the preservative elements present in the animal. The invading forces gain the day, the preservative elements are overcome, being present in a small degree, a general infection takes place, and death is the result. At last a group is arrived at in which this organism so deadly for others is no longer so for this. It only produces a mild local reaction or perhaps no reaction at all. So it is with plague. Rats show susceptibility in the highest degree. No local lesion can be found in the animal, which dies from a virulent septicæmia. As regards man's relationship to plague, I have come to the conclusion that in man there are two degrees of susceptibility, which degrees depend mainly on the source of infection. One of them is that susceptibility in the highest degree which produces pneumonic and septicæmic cases. Secondly, there is a degree of susceptibility which produces the bubonic cases. This is the stage characterised by local reaction and toxæmia which may end fatally or may go on to recovery.

A peculiarity in plague is that when that point is reached in which local reactions are necessary it does not happen, as in diseases caused by other septicæmic microbes, that the local reaction takes place at the site of inoculation but that it is the nearest group of lymphatic glands which shows the reaction. The seat of election with plague is the lymphatic system. In every case of plague one or other group of glands is infected, no matter how short the history—be it only 20 hours. I give two cases from my notes. The first of these

patients was a watchman, aged 20 years. He was on inspection parade at 8 A.M. but did not report anything wrong. I inspected the lines at 9 A.M. and saw this man but he made no complaint. At 10.30 A.M. I returned to the hospital and was told that a watchman had been admitted a few minutes previously. The house surgeon could not make much out of him so he asked me to see him. He was a strong healthy young man in the same condition as when I had seen him on my rounds. When asked why he had not "reported ill" before he said that beyond feeling a little giddy he was perfectly fit for duty so he thought that it might pass off. His temperature and pulse were normal, his tongue was clean, and he had no pain anywhere. I was on the point of sending him back to duty but as his eyes seemed somewhat heavy and plague was epidemic at the time I took him in for observation. At 12 noon his temperature was 101° F. At 3 P.M. it was 106° and he was dead at 3.30 P.M. At the necropsy numerous small petechiæ were found all over the mesentery, the small and large intestines, the abdominal surface of the diaphragm, and the heart. The mucous membrane of the gastro-intestinal tract was greatly congested. The mesenteric glands were enlarged. The spleen and liver were of normal size but congested; the gall-bladder was distended. The axillary and inguinal glands were normal. Smears taken from the spleen and mesenteric glands gave almost pure cultures of plague bacilli. Similar results were obtained from the liver and the gall-bladder, the latter having other bacilli. Blood taken from the heart showed bacilli but not many and smears from the lungs were practically negative, very few bacilli being found in them.

The second patient was a syce, aged 36 years. He was working at 8 A.M. and came to the hospital at 9.30 feeling sick and giddy. His temperature was normal, his tongue was coated, his eyes were bright, and his pulse-rate was 80. At 12 noon his temperature was 104°, his pulse-rate was 140, and he died at 4.30 P.M. The post-mortem appearances were almost the same as in the last case. These men were of different caste and lived four miles apart. In a series of over 400 necropsies I have never yet found one case in which some group of glands was not infected.

As stated above, animals are susceptible to plague in varying degrees, rats coming first, then guinea-pigs, and so on. I wish to mention here some experiments made by me on some domestic animals. My reasons for this are that in an article published in 1903 Dr. Simpson emphatically states that fowls, pigeons, ducks, and turkeys are not only susceptible to plague but are a means of conveying it to human beings. The point is one of much importance and one that ought to be settled. Throughout the past five years I have kept careful note as to any abnormal death-rate amongst domestic animals before, during, or after a plague epidemic. In no district could I get any information that might lead one to suppose that fowls, pigeons, or ducks contracted plague. In 1900 I experimented on pigeons with negative results. In 1903 I repeated the experiments on a larger scale. I took one dozen healthy pigeons and half a dozen fowls. I kept them shut up in coops for three weeks so as to accustom the birds to their close quarters. Then I commenced as follows. Into the peritoneal cavity of two pigeons I injected one cubic centimetre of a 24 hours culture of plague bacilli. The same quantity was injected into the crops of two others. I repeated on four other birds the same but increased the dose to three cubic centimetres. With the fowls I injected two cubic centimetres into the peritoneal cavity of three. To one I gave two cubic centimetres beneath the wing and two more got three cubic centimetres into the crop. In each case I made control experiments with rats and guinea-pigs. All the control animals died from plague within five days. Daily I examined the droppings for any signs of what might be plague bacilli. At the end of three month all the birds were still alive, not one of them having shown any symptoms of being incommoded by the inoculation. After seeing the Hong-Kong report I decided to make further observations. I commenced with 12 pigeons and 12 fowls. To some I gave two cubic centimetres, to some as much as five cubic centimetres, and two fowls I fed at odd times on plague-infected rats and portions of organs. It is now 12 months since these birds were inoculated but they are all alive to-day and some of the pigeons have been breeding. None showed symptoms of indisposition. One pigeon drooped for a few days about three weeks after the inoculation but was never off its food.

I find that the various commissions which came out to India place pigeons amongst those animals which are not susceptible to plague. The following are some septicæmic diseases in the lower animals which require to be kept in mind by those who are on the watch for plague.

1. *Septicæmia hæmorrhagica.*—This disease is also known as fowl cholera, hog cholera, or rabbit septicæmia. The specific bacillus is widely distributed; it is found in impure water and in putrefying infusions. Its morphological characters are as follows: it has short, rounded ends; it is 1 $\mu$ to 4 $\mu$ long and 0·6 $\mu$ to 0·7 $\mu$ broad; it occurs in pairs, singly, or in chains of four or more; staining is usually bipolar; it does not stain when treated by Gram's method; it is non-motile and non-liquefying; it grows best between 35° and 37° C. and below 13° C. it stops growing. In gelatine after two or three days small colonies, finely granular and round, are formed. In agar finely granular semi-transparent colonies with irregular edges are formed.

2. *Duck cholera.*—The bacillus of this disease is non-pathogenic for fowls and pigeons. Its behaviour on staining, &c., is similar to that of the preceding bacillus.

3. *Hog cholera.*—The characters are the same as above, except that the bacillus is motile and the colonies are larger.

4. *Swine plague.*—The bacillus exhibits bipolar staining; it is flagellated and motile: it does not stain when treated by Gram's method.

5. *Bacillus agrigenus.*—This organism is found in soil and is similar to that of fowl cholera.

On comparing the above organisms with the plague bacillus it is obvious that any of them, and especially those in Group 1, might be easily mistaken for the plague bacillus. None of the above give stalactite formations but the plague bacillus does.

Cats are susceptible to plague and may convey it to man. Information was brought that plague had broken out in a village some six miles off where there had been a slight outbreak two years previously but none since. I rode to the village and was told that two cases had occurred in the same house which was first infected two years ago. I was also informed that no rats had been found in the village. One of the villagers said that his cat had not been well for two days and that it had a swelling in its neck. This cat, with which was a kitten about seven weeks old, had a swelling on the left side of its neck which was tender to the touch. The post-mortem appearances were as follows. The submaxillary glands were enlarged and inflamed and one was breaking down in its centre. The surrounding tissues were infiltrated with a sero-sanguineous fluid. Smears from the glands and surrounding parts showed staphylococci, streptococci, and numerous bacilli which gave bipolar staining. The spleen was congested and smears taken from it (but not the blood from the heart) showed the bipolar stained bacilli. Plates were made and a bacillus was isolated which corresponded in every way with the characters shown by the plague bacillus. The bacillus was motile but not actively so. A guinea-pig inoculated with one cubic centimetre of a 24 hours' culture died in four days from plague. A rat was inoculated with plague from a human case and died in four days. Its internal organs were given to a third cat. Two days after eating this material the cat showed signs of violent gastro-intestinal disturbance. Its stools were slimy, copious, and showed bacilli with bipolar staining but I was unable to isolate them. The cat died in ten days and it was then found that the whole gastro-intestinal tract was much inflamed with here and there patches of ulceration. All the internal organs were congested and the kidneys had small hæmorrhages into them. The bladder was distended and in the urine I found bacilli giving bipolar staining. Cultures inoculated into rats killed these animals in two days and similar bacilli were obtained from their dead bodies.

Some three months afterwards I was asked to see a man who was suffering from plague. He lived alone and his house was several hundred yards from that of anyone else. He died and on the next day a Persian cat which had lived with him was sent to me. The cat had a marked swelling on the right side of the neck; it died during the night and the post-mortem appearances and the characteristics of the bacilli found in it were similar to those mentioned in the above case.

The most important thing to discover is the behaviour of the bacillus during the quiescent stage. In 1900 the following query was made in my notes. "Does the plague bacillus exist as a saprophytic microbe as well as a parasitic one? Would this account for its recrudescence?" Recently the

following experiment was made. It is given for what it is worth.

In November, 1904, a case of plague occurred in a miner's hut. These huts measure 9 feet by 12 feet by 10 feet. They are made of tatties on a frame and have a zinc roof. I saw the hut and its occupants at 11 A.M. At 2 P.M. the body of the wife of the man who occupied this hut was brought up for post-mortem examination. The history of the case was to the effect that she had vomited once or twice during the previous night and felt giddy. In the morning she did not feel well but kept to her work. She had died from plague. The flooring of the hut was dug up to the depth of six inches. This was brought to the laboratory and placed in a tin-lined box measuring 4 feet by 2 feet by 3 feet. One foot of wire netting was nailed on in front. The soil was then left untouched for one month. Then four rats were caught from an uninfected area and placed in this box. They were fed on boiled gram. For three weeks all went well. Then one morning I found that the smallest of the rats was dead. In three days' time another had died and in 12 days from the death of the first the four rats had died. They all died from plague. Two days after the last death a guinea-pig was placed in this box; in five days it had died from plague. I am not yet prepared to discuss this matter. I hope to do so at some future date when I may have further material to deal with.

In the communication of plague to a susceptible individual the channels of infection are: (1) the skin and mucous membrane; (2) the alimentary canal; and (3) the respiratory organs. Before dealing with these I would like to note a few facts about the lymphatic system. There are two sets of lymphatics—namely, the superficial and the deep. In the limbs those of the superficial set are more abundant upon the inner and flexor surfaces than upon the outer and extensor surfaces. They are especially numerous at the junction of the skin and mucous membranes. The deep set accompanies the blood-vessels. There is no communication between the two sets except where they empty into the same node—i.e., gland. They ultimately end in veins. The lymph mixes with venous blood. The framework of the lymph nodes or glands is adenoid reticular tissue having in its meshes irregular masses of leucocytes. This tissue presents several different forms according to the degree of compactness, some being firm, well defined, and encapsuled, some being diffuse, and some in an intermediate stage. The following varieties may be specified. 1. Diffuse lymph-adenoid tissue is found in the mucous membrane of the intestine. It is a mere network of adenoid reticular tissue inclosing leucocytes. 2. In the submucous or subserous membrane there are small distinctly defined masses which are the solitary glands of the intestine. 3. The agminated glands are each a group of two. 4. More distinct collections of lymphadenoid tissue with a well-marked capsule are seen in small depressions of the mucous membrane in the tongue, the tonsils, and the pharynx. 5. Unlike the above, the lymph nodes are not connected with a mucous surface, but have a distinct capsule and occur in the course of lymph vessels.

All nodes, except the superficial inguinals, are situated beneath the deep fascia though not under its immediate covering. Each node or group of nodes receives its lymph from fairly-well defined areas or parts but at the periphery of these areas there is well-marked inosculation of the neighbouring vessels. Members in each group communicate and each group has communication with other groups. The nodes or glands of the lower extremities may be classified as follows, according to their region: (1) the superficial inguinal, (2) the deep inguinal, (3) the popliteal, and (4) the gluteal. The superficial inguinal glands are divided into two sets—namely, the superior or oblique and the inferior or vertical. The superior or oblique consists of three groups—the external, the middle, and the internal. They collect lymph from the integuments of the buttocks, from the skin round the anus, from the lower and outer part of the back above the buttocks, from the penis and the abdomen below the navel, from the distal portion of the urethra in both sexes, and from the vulva and lower part of the vagina. The scrotum and superficial portion of the perineum often drain into this set. The inferior set is situated at the saphenous opening. Lymph flows to this set from the superficial part of the thigh, from the entire leg and foot except the outer side, and from the scrotum and integuments of the perineum. The superficial nodes discharge partly into the deep and partly into the external iliacs. The popliteal nodes collect lymph from the outer side of the leg and foot and the same parts of the deep structures. The deep inguinal nodes lie round the upper part of the artery and vein and get their lymph from the superficial nodes and deep structures of the greater part of the leg. The gluteal nodes collect lymph from the deep parts of the buttocks. The groups of nodes or glands in other parts of the body need no special mention for my purpose.

Referring to my notes I find that inguinal buboes occur more frequently in adult males than in women or children. My own observations also give a much higher percentage of inguinal buboes as primarily occurring in the superior or oblique group of inguinal glands. Once the disease is established the inferior, or what is termed the femoral, group will be found to be infected. I have examined many statistics made by native hospital assistants, which place the femoral bubo before the inguinal. I have asked some of these gentlemen to keep records for me and unknown to them I have made my own observations. I prefer my own observations. I find that inguinal buboes are commoner in women than in children, and in women it is the superior group that shows the higher percentage of primary infection. With axillary buboes women show a higher percentage than either men or children, but here children approach them very closely. With cervical buboes—that is, buboes occurring above the root of the neck—the greatest percentage occurs amongst children; women come next, and men last of all. Why should one group of glands be more susceptible in men than in children? Why should all groups not suffer alike?

One of the first things that fixed my attention on landing in India was the peculiar posture taken by a native man when sitting. His perineal region and adjacent parts are brought in very close proximity to the ground. His loin cloths are constantly sweeping up dirt and other matter from the soil. The skin of the fork and on the internal parts of the thigh is in a more or less sodden condition. Tinea circinata is found in 90 per cent. of the natives, especially in the scrotal and inguinal regions. It is the habit of many castes to have the pubes shaved; this renders that part liable to cuts. All these points invite attention to this region rather than to the foot. A native's foot and leg are, moreover, provided by nature with a covering that would defy most insects. Women and children when sitting do not assume the same position as the men. Women are much more on the move, they have not the time to squat down, and when they do it is not done exactly as a man does. Children, again, may squat for a few seconds with their perineal region close to the ground, but their usual state is one of movement, they are either running or crawling about. If the leg and foot are the regions most liable to infection why is there not a preponderance of buboes in the inguinal region amongst women and children in whom there is a more delicate condition of the skin covering the leg and the foot than among the men? May it not be due to the above facts? There are various other causes which need no detailing to the medical mind that render those regions more liable to infection.

I have said that axillary buboes are more common in women than in men. It is only necessary to look at one group of glands—namely, the pectoral group, that lie along the border of the pectoral muscles. They drain an area comprising the mamma and the abdominal surface above the navel. All the groups in this region communicate very freely. The axilla is a spot where dirt can easily accumulate. Profuse perspiration usually goes on there. Amongst some castes the axillary hairs are shaved off or pulled out by means of forceps. This latter performance nearly always leaves one or more bleeding points. The woman's nipple and the surrounding skin are liable to cuts, scratches, or other abrasions. She suckles her children until they are two or three years old; perhaps she suckles one or more during this period. Again, she wears a kind of bolero, close fitting, in most cases far from clean. If she wants to wipe her fingers she instinctively does it on this garment, no matter what she has touched. Here, then, we find reasons that may account for the axillary bubo being commoner amongst women than amongst men.

With regard to cervical buboes the greatest percentage occurs amongst children. Is this to be accounted for by the fact that a child's first instinct is to put all things in its mouth? A child's skin is much more tender and liable to be cut and scratched than an adult's. Why, then, do the inguinal and the axillary regions not show a larger

percentage of buboes than the cervical region? I venture to give the above as a possible reason. The mucous membrane is more delicate; there are two periods of dentition; these periods last over several years and it is during these years that cervical buboes are most numerous.

To illustrate the above arguments three cases are given. In the first the scene is a small hut where a man lies on the floor suffering from pneumonic plague. He is expectorating in all directions. Beside him sits his brother or some friend who from time to time wipes the patient's lips with his nether garment or wipes up some of the expectoration that may have fallen near. I have seen him do this with his fingers and then wipe them between his legs. In the course of a week this man had an inguinal bubo; it may be the inferior group but more often is it the superior group that is first infected. In the second case the scene is as above but it is a woman who is ill with plague and her sister or friend sits near. She performs the same kind attentions as the man did but she wipes her fingers under her arms—i.e., in the axilla. In the course of a week she has developed plague with an axillary bubo. In the third case the scene is the same, or it may be in a hospital. A child is crawling round the floor, either sweeping it with a chupattie or picking up odds and ends and placing them in his mouth. In a few days the child has plague with a cervical bubo. I have seen the above happen again and again.

I am of opinion that patients may contract plague through the alimentary system—namely, by means of contaminated food. If a rat is fed on some plague infected material it dies from plague. If some gram rubbed up with the juice expressed from a plague gland or spleen is given to a guinea-pig the guinea-pig dies from plague. In the case of the human subject no such direct evidence is obtainable, but from several post-mortem examinations on patients who died within 24 hours from the time of attack, patients in whom the only symptom was an acute diarrhœa coming on suddenly and ending fatally in a few hours, one is driven to believe that the alimentary canal is a source of infection. If it is so for rats and guinea-pigs why should it not be for man? Post-mortem examinations on such cases show a marked injection of the solitary glands in the small intestine. Plague bacilli are found in these glands and the neighbouring mesenteric glands are likewise greatly enlarged and injected with plague bacilli in them.

When the respiratory system is considered it is more difficult to account for the primary channel of entrance. Cases of pneumonic plague are not met with in every epidemic. In the same locality one or two years may pass with few if any cases recorded; then the pneumonic type may be the prevailing one in the next epidemic. But in this type no matter how soon death supervenes I have never failed to find the bronchial and mediastinal glands infected.

The above three channels of infection give rise to three types of the disease—namely, the bubonic, the pneumonic, and the alimentary. Either of these may take on a septicæmic form and death occurs from an acute septicæmia. Numerous other types are mentioned in some text-books, but if symptoms are taken as the standard of types the latter can be multiplied indefinitely. On looking at the death-rate in each of the above types one naturally wonders why it should be greater in the last two forms. Are there, in other words, an acute, a subacute, and a chronic form of the bacillus? From the virulent and rapid rise of an epidemic to its mild and gradual decline one is forced into the conclusion that the plague bacillus in its passage from man to man probably undergoes a gradual attenuation, ultimately assuming the chronic form, which may perhaps after a more or less extended period of quiescence take on active and virulent properties. But this will not account for the difference in death-rates.

I am inclined to think that there are two forms of the plague bacillus—namely, the acute and the chronic. The latter continues the disease from one epidemic to the other, while the former gives the three types above mentioned, each type being entirely dependent on the channel of entrance, and the difference in death-rates being to a great extent dependent on the group or groups of glands primarily infected. I think it will be admitted that in bubonic plague the gravity of the disease is greater when axillary and cervical glands are infected than when inguinal glands are attacked. At least it is my experience that, as a rule, inguinal bubonic plague is more likely to terminate in recovery than axillary or cervical bubonic plague. The reason for this is no doubt the position of the inguinal glands. They are further away from the central nervous system, they are more or less isolated, and they communicate with the external iliacs alone. The channels of infection when these glands are the primary seat of infection are few. In the upper region of the body there is a free communication not only between each individual gland but between each and every group of glands, so that as soon as one group becomes infected numerous others in close proximity will become so almost at once. The efferents of all these groups discharge into the right lymphatic duct or into the thoracic duct.

A reference to the notes on the lymphatic system will show that there are five kinds of nodes, arranged according to their density. In other words, there are so many kinds of sieves of varying degree in meshwork. In the intestines there are three sets of glands with open network. There is nothing in these glands to prevent easy transmission of material through them. They have no capsule like the inguinals; they are less compact. In fact, they are sieves with a large meshwork. A person swallows some plague-infected food and the plague bacilli pass at once into the general system, producing an acute septicæmia and terminating rapidly. The plague bacillus is not arrested by these glands, for they are lymph glands, there is no primary toxæmia but a true septicæmia, and the plague bacillus is always found in blood from the finger. As soon as the patient complains of feeling ill evidence of his illness will be found in his blood. It would not be wrong to describe this as septicæmic plague but the chief symptom is a violent diarrhœa, the source of infection is the alimentary canal, and septicæmia is not confined to this type alone, for it may accompany a bubonic attack. Here, again, it is more common to find that septicæmia follows on bubonic plague when the axillary and cervical glands are infected than when the inguinal glands are the seat of the disease. So that leaving out such predisposing causes as low state of health, bad food, overcrowding, &c., I venture to state that the virulence of plague depends to a marked degree on the first group of glands which it has to pass through.

That most important question as to how plague is conveyed from man to man is one that will be dealt with in a subsequent paper. For the present I shall merely state with reference to the relationship of rat and man that we have no authentic evidence to show that previously to a first outbreak of plague in a village any noted death-rate amongst rats was noticed in the village or that any dead rats were found. But in subsequent epidemics in these villages dead rats were found before human beings were attacked. I have a record of some 20 villages which I visited immediately on hearing of the first case of plague. No dead rats had been seen and the source of infection was in each case traced to other villages.

With respect to the treatment of patients suffering from plague, cardiac stimulants sum up the whole question at the present moment. There can be little doubt that if the unfortunate native and his relatives could be made to understand the great danger that must follow any attempt to rise out of the recumbent position several cases of plague would recover that otherwise die. In the early part of this paper I mentioned the fact that as suppuration advances the plague bacillus disappears. Why does this disappearance take place? Is the presence of stapylococci or of streptococci inimical to the growth of the plague bacillus? If so, would it be out of place to bring about suppuration as soon as a bubonic case is admitted in the wards? I make the suggestion. Arguing on the fact that the plague bacillus belongs to the streptococcus group I commenced to treat early and serious cases of plague with inoculations of antistreptococcic serum. Out of 21 cases so treated there were 13 recoveries. For reasons that need not be mentioned I had to discontinue the treatment, but the results are encouraging and might be tried by others.

In 1902, after the above experiments were made, I came across the following observation in the *Edinburgh Medical Journal* for April, 1806: "Before the army left Syria a great number of soldiers were attacked by plague. It seldom attacked wounded men; and scarcely an instance of man being attacked by it whilst wounds were in a suppurative stage, though many were infected as soon as their wounds were healed." This statement was made more than a century ago—namely, in 1804 by the celebrated French surgeon Baron Larrey, chirurgien en chef de l'armée d'orient.

Champion Reef, Mysore State, India.

# THE CHEMICAL EXAMINATION OF THE GASTRIC CONTENTS, WITH AN ACCURATE CLINICAL METHOD OF DETERMINING THE "ACTIVE" HYDROCHLORIC ACID.

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THE attention which is being paid at the present time to the surgical aspect of diseases of the stomach is a sufficient excuse for the title of this paper. During the last two years great strides have been made in the operative treatment of various gastric complaints and there is no doubt that further advances will be made in this direction in the immediate future. It is impossible, for example, to exaggerate the importance of an early diagnosis in cases of gastric carcinoma. The diagnosis is usually deferred until a definite mass can be felt. An operation is then performed but too often other structures are found to be secondarily involved, so that the surgeon must perforce be content with the palliative operation of gastro-enterostomy when an earlier diagnosis might have enabled the entire diseased part to be extirpated successfully. For an early diagnosis to be made it will, I think, be generally agreed that a careful chemical examination of the "gastric contents" is of the utmost importance. It is most essential that the method employed in this analysis should be of rigid scientific accuracy and also of clinical application. Approximate methods are of no value if fine distinctions are to be drawn from the results. The analysis must be of absolute accuracy if advances in the early diagnosis of disease are to be made.

## I. "THE GASTRIC CONTENTS."—HOW OBTAINED.

The vomit may be used for the analysis if obtainable. Usually, however, it is better that the patient be given a "test meal" and the gastric contents be drawn off subsequently. It is, I think, advisable that the stomach should not be washed out before the test meal is given. The patient should, however, be kept on a restricted and light diet for a day or two previously so that any temporary dilatation of the stomach may be reduced. For the test meal various combinations have been recommended, some containing large quantities of proteid—e.g., eggs, meat, milk, &c. It will be generally agreed that the test meal should not by its complexity add to the difficulties of the analysis; on the other hand, it should be of such a nature that it will act as a stimulus to the gastric secretion.

It must be remembered that the amount of physiologically active hydrochloric acid present in the gastric contents is of the greatest importance and that this amount can only be determined by a quantitative estimation described below. There is no qualitative test which can be performed in a few minutes for hydrochloric acid when combined with organic bases (proteid, &c.). If these organic bases are not present in appreciable quantity in the test meal then a considerable amount of the hydrochloric acid may be in the free state and capable of demonstration in two or three minutes by Gunzberg's test. Now the presence of free hydrochloric acid is of very great value in diagnosis, since it is almost invariably absent in gastric carcinoma and almost always present in gastric and duodenal ulcer. Hence the test meal should be so chosen that when the gastric contents are drawn off some of the hydrochloric acid may, if possible, be uncombined and capable of immediate demonstration.

In order to decide on a suitable test meal I have performed several experiments. In the first place the delicacy of Gunzberg's test for free hydrochloric acid in aqueous solution was determined and it was found that a dilution of 1 in 100,000 was capable of clear demonstration. The same series of experiments was performed with the addition of fats and carbohydrates respectively, and it was found that these bodies do not sensibly interfere with the delicacy of the test. On the other hand, proteids—e.g., albumin, mucin, albumose, peptone, &c.—and also nitrogenous organic bases as creatine, creatinine, &c., have the property of combining with hydrochloric acid, so that when these bodies are present in considerable amount no free hydrochloric acid can be demonstrated by Gunzberg's test (or other tests for free hydrochloric acid). Thus it was found that a solution of hydrochloric acid of strength 1 in 500 (about the same strength as normal gastric juice) gave after the addition of excess of the above bodies no reaction for free hydrochloric acid. It is obvious, therefore, that the proteids present in eggs, meat, large quantities of milk, &c., will prevent the reaction for hydrochloric acid, though a normal amount may be excreted by the gastric glands. Beef-tea was made, using bovril and other meat extracts. It was found that this combines with a considerable amount of hydrochloric acid owing, not to the presence of proteids, but rather to the amount of nitrogenous organic bases present. Thus if hydrochloric acid is added to the beef-tea to the extent of 1 in 2000 it can just be demonstrated as free hydrochloric acid. Weaker strengths of hydrochloric acid gave no reaction for free hydrochloric acid owing to its complete combination with the organic bases present.

As a result of the above experiments and also from practical experience I have concluded that the following are examples of the most suitable test meals. A pint of weak tea (infused only two or three minutes) with the addition of not more than one ounce of milk and sugar if desired, or a pint of thin arrowroot made with water and about two ounces of milk, sugar being added to taste. Instead of the arrowroot, cornflour, thin gruel, or other carbohydrate food may be substituted. With the above liquid a round of thin buttered toast should be taken. The toast contains dextrin, which is a powerful stimulus to the gastric glands, and the solid particles, by acting as a mechanical stimulus to the pyloric sphincter, prevent the too rapid passage of the meal from the stomach to the intestines. The test meal should be given in the morning before any other food is taken and drawn off in an hour and a half.

In withdrawing the gastric contents it is important that there should be no dilution with water or the results of the analysis will be affected. A long soft tube should be passed into the stomach having an external piece longer than the portion inside the alimentary canal. The air should be withdrawn from the tube by inserting a syringe into the external end when syphon action will be started and the fluid will flow gently out on removal of the syringe. Of course, the stomach-pump might be used, but this is not usually necessary.

## II. GENERAL EXAMINATION OF GASTRIC CONTENTS.

A portion of this is taken and allowed to settle, the centrifuge being used if necessary. A careful microscopic examination is made of the deposit. Starch granules, bacteria (sarcinæ, &c.), yeast cells, striped muscle fibres, and epithelial cells are commonly found, the latter often being especially numerous in cases of gastric carcinoma. The remainder of the gastric contents is examined as to its general appearance, acidity to litmus, smell, consistency, the presence of slimy mucus, &c. The substance is filtered and the filtrate is used for the subsequent examination.

The clear filtrate should be tested qualitatively for free hydrochloric acid and lactic acid (see below). For albumin (by the boiling test); mucin: by the precipitate with 5 per cent. acetic acid insoluble in moderate excess; albumose: the cooled filtrate after removal of mucin and albumin gives a white precipitate with salicyl sulphonic acid; peptone: the filtrate after addition of salicyl sulphonic acid in excess gives a white precipitate with Meyer's reagent. The biuret test may be conveniently used for detecting albumose and peptone after removal of albumin by boiling. Usually in the gastric contents much more peptone than albumose is found, often quite large amounts of the former. Dextrin and sugar should be tested for; of course, if milk has been taken lactose will be found, otherwise sugar would not be present save in diminished acidity of the gastric contents. Bile pigments are sometimes present in abnormal conditions owing possibly to reversed peristalsis. Blood should be tested for if the contents are brown in colour.

## III. SPECIAL CHEMICAL EXAMINATION.

A. *Total acidity.*—A titration should be performed, 20 cubic centimetres of the filtered contents being taken, diluted with a little distilled water, and decinormal alkali run in from a burette. Phenol-phthalein and litmus are the indicators in common use for this estimation. They indicate the total free inorganic and organic acids, and also the hydrochloric acid combined with proteids and other organic bases. Phenol-phthalein is the more convenient since the titration may be done in the cold, litmus requiring a boiling temperature in order to remove $CO_2$. It must be remembered that

phenol-phthalein differs from litmus in one respect—viz., in the presence of alkaline carbonates; thus bicarbonates are neutral to phenol-phthalein but alkaline to litmus. Hence if carbonates are present a slightly higher result is obtained for the acidity with phenol-phthalein than with litmus.

Decinormal caustic soda is most commonly used as the alkali. It should be as free from carbonate as possible. It should be made up with pure caustic soda (obtained from alcoholic solution) and dissolved in air-free water, the solution being kept so that it may not absorb $CO_2$ from the atmosphere. Decinormal barium hydrate solution gives rather more accurate results than $\frac{N}{10}$ NaOH when phenol phthalein is used as indicator, since here no bicarbonates can be formed. $CO_2$ should be removed from the filtered gastric contents before the titration is done by passing a current of pure air for two or three minutes through the warmed liquid. The $\frac{N}{10}$ Ba $(OH)_2$ solution needs careful storage, since it is acted upon by atmospheric $CO_2$ and so weakened in strength owing to the formation of the neutral carbonate, the solution becoming milky. Hence the solution should always be bright and clear before use. The total acidity is usually expressed "acidity equivalent to so much hydrochloric acid."

B. *Determination of the physiologically active hydrochloric acid.*—The secretion of hydrochloric acid is one of the most important and characteristic features of the stomach and from the presence and amount of this substance in the gastric contents the most valuable aids to diagnosis are obtained. Now in the gastric contents hydrochloric acid may be present in three forms:—

(1) Free hydrochloric acid ... ... ... ... ... ... } Physiologically active hydrochloric acid.
(2) Combined hydrochloric acid: (*a*) with proteids and nitrogenous organic bases ... }
(*b*) with inorganic bases—e.g., NaCl.

It is obvious that what is necessary to be known is the amount of physiologically active hydrochloric acid present. Many misconceptions have arisen from the use of the terms "free" and "combined" as applied to hydrochloric acid. It is often thought that the presence of free hydrochloric acid is of more importance than that of the combined acid. This is not necessarily the case. Hydrochloric acid which is combined with proteids and nitrogenous organic bases is hydrochloric acid which a short time before was free but which has already commenced its important duties in the process of digestion; it is therefore of quite equal importance with free hydrochloric acid. The relative amounts of free and this combined hydrochloric acid depend solely on the quantity of proteids and organic bases present. Of course, the hydrochloric acid combined with inorganic bases need not be considered. It is introduced into the stomach in the combined state as such—e.g., sodium chloride. It is hence of the utmost importance that the physiologically active hydrochloric acid should be determined by an absolutely accurate method and one which can be quickly and simply performed—i.e., be of clinical application. Also the hydrochloric acid should be "directly" estimated and not calculated indirectly from a titration of the acidity, since much greater accuracy results from a direct determination of the chlorides present.

Few of the methods described give an accurate determination of the "active hydrochloric acid" and many are very complicated. The method I have used for upwards of a year, and which is a simple application of Volhard's determination of chlorides, is one which can be quickly performed with simple apparatus. It is of the greatest accuracy, as I have repeatedly demonstrated. The following is a description of the process.

Two equal volumes of the filtered gastric contents (20 cubic centimetres) are taken. (*a*) One portion is diluted to about 60 cubic centimetres with distilled water, ten cubic centimetres of pure nitric acid, about five cubic centimetres of a solution of iron alum, and a measured excess (30 cubic centimetres) of decinormal silver nitrate solution are added. $\frac{N}{10}$ ammonium sulphocyanide solution is run in from a burette until a permanent reddish-brown tint just results. The difference between the quantity of silver nitrate solution added and the ammonium sulphocyanide solution used gives the amount of total chlorides present as $\frac{N}{10}$ HCl. An evaporating dish may be conveniently used for doing the titration. (*Note.*—If the quantity of gastric contents is limited 20 cubic centimetres may be used for the determination of total acidity with $\frac{N}{10}$ NaOH and phenol phthalein. This liquid is then used for the estimation of the total chlorides exactly as described above.)

(*b*) The other portion of the gastric contents is placed in a porcelain evaporating dish (four and a half inches in diameter) and evaporated to dryness on the water bath. The solid residue is heated for about an hour on the water bath. The dish is then placed on a piece of wire gauze and heated with a small Bunsen flame, the flame not coming in actual contact with the dish. The heating is continued for about ten minutes until the residue is well charred. The dish is cooled; about 60 cubic centimetres of water and the pure nitric acid are added, the contents being well stirred with a glass rod. The titration is then performed exactly as described above (*a*) and the quantity of chlorides present given in terms of $\frac{N}{10}$ HCl. The difference between the chlorides found in (*a*) and (*b*) expresses with great accuracy the amount of the physiologically active hydrochloric acid.

*Proof of accuracy of method.*—I have repeatedly tested this and invariably found the results extremely accurate. Example: A solution of hydrochloric acid of known strength was made up with a 1 per cent. solution of commercial peptone. The above method gave:—

| | | |
|---|---|---|
| Amount of "active" hydrochloric acid found | = | 0·984 per cent. |
| " " hydrochloric acid actually added | = | 0·989 " " |
| Experimental error | = | 0·005 " " |

Similar accuracy is obtained with smaller percentages of hydrochloric acid.

*Notes on the process.*—The effect of igniting the dried residue of the gastric contents is to drive off the free hydrochloric acid and also to decompose the organic bases which have combined with hydrochloric acid, thus causing the latter to be also volatilised. The loss in chlorides, therefore, represents "the active hydrochloric acid." It is important that the dish be not heated over a free flame or else inorganic chlorides may be volatilised in small amount. The presence of the black particles due to the charring does not in the least interfere with the accuracy of the titration, since the white precipitate of silver chloride and silver sulphocyanide forms an effectual contrast to this and the first appearance of a red-brown tint in the titration can be immediately seen. It is not necessary to filter off the charred particles as this introduces errors and makes the process unnecessarily complicated.

*Experiments relating to hydrochloric acid determination.*—If peptone or albumin is added in excess to hydrochloric acid of strength equivalent to that in gastric contents and the solution is evaporated to dryness and heated on the water bath for several hours there is no loss of hydrochloric acid. Hence a temperature greater than that of the water bath—i.e., ignition—is necessary in order to drive off the hydrochloric acid combined with organic bases. If hydrochloric acid of strength as in the preceding experiment is mixed with dextrose or dextrin, evaporated to dryness on water bath, and the residue heated thereon for two hours, there is only a partial loss (about one-third) of the hydrochloric acid. This proves that prolonged heating on the water bath of gastric contents may only partially drive off the free hydrochloric acid.

*Review of methods described for estimating hydrochloric acid in gastric contents.*—1. Sjoqvist described a method of estimating free hydrochloric acid by evaporation to dryness with $BaCO_3$ igniting, and estimating the $BaCl_2$ formed. The hydrochloric acid combined with proteid is not estimated.

2. *Leo's method.*—Total acidity is determined by titration with $\frac{N}{10}$ NaOH in presence of phenol-phthalein, a correction being made for acid phosphates. Here the hydrochloric acid is not directly estimated and organic acids cause errors.

3. *Toepfer's method.*—Titration with $\frac{N}{10}$ NaOH, using several indicators, for example:—

(1) Titration using as indicator phenol-phthalein gives total acidity.
(2) " " " alizarin gives free hydrochloric acid and organic acid.
(3) " " " { dimethyl-amido-azo-benzene } gives free hydrochloric acid.

Here the hydrochloric acid is not directly estimated, also the indicators only give approximate results; they do not

act quite as stated—e.g., titration (3) might include some organic acid (see below).

4. Shufflebotham[1] in an able paper called attention to the importance of "active" hydrochloric acid and rightly pointed out that free hydrochloric acid is much more often absent than present in the gastric contents of pathological cases. He gave a method of estimating the acids which is not of great accuracy: (*a*) total acidity by titration with $\frac{N}{10}$ NaOH in presence of phenol-phthalein; and (*b*) organic acids estimated by extraction with ether. This latter process takes 24 hours and then the extraction may be incomplete to the extent of 10 per cent.

5. Ham and MacLeod[2] gave a most interesting method of determining free hydrochloric acid depending on the hydrolysis of cane sugar by the gastric contents. The estimation takes 24 hours and requires a calculation by logarithms from a somewhat complicated formula. The polarimeter is used in the determination. This method is useful for determining free hydrochloric acid, but it does not estimate the hydrochloric acid combined with proteid which is usually the more important factor, since free hydrochloric acid is more often absent than present.

6. Dr. B. Dawson[3] gives a method of determining free hydrochloric acid and organic acid. This method is not accurate since in the determination it is assumed that all the free hydrochloric acid is driven off by heating on the water bath, which I have shown above is not the case. Also the hydrochloric acid combined with proteid is not estimated directly.

7. Dr. Sidney Martin[4] gives a very accurate method of estimating the physiologically active hydrochloric acid, which is similar in principle to the method that I have described above. There are several details described in the process which I have found may be dispensed with, even greater accuracy resulting from the simpler method given above.

C. *Qualitative tests for free hydrochloric acid.*—I have made numerous experiments in order to determine the most accurate method of detecting free hydrochloric acid. There is no doubt that Gunzberg's test is the most trustworthy. It is most important, however, that the reagent should be freshly made up for each test. If the solution is made in bulk it loses its delicacy in a few hours and becomes useless for accurate work. The best way of applying the test is to keep the phloroglucin and vanillin in separate bottles, to the corks of which are attached little scoops which will measure about four grains of the former and two grains of the latter. These quantities are placed in a small porcelain evaporating dish, about one cubic centimetre of alcohol (pure methylated spirit does quite well) is added to dissolve them, then about two cubic centimetres of the filtered gastric contents are added. The dish is heated on the water bath till its contents are nearly dry. A brilliant scarlet-red colour indicates free hydrochloric acid; a yellow colour is negative. I have found that 1 part in 100,000 of hydrochloric acid can be clearly demonstrated by this test. Organic acids do not give the test even if present in great quantity—e.g., to the extent of 1 per cent. or more. At the same time they do not interfere with the positive reaction if free hydrochloric acid be present. Carbohydrates and fats do not interfere sensibly with the delicacy of the test. The test, however, does not indicate at all the presence of hydrochloric acid combined with proteid or organic bases, only a yellow residue resulting. Of course, if there is free hydrochloric acid as well as combined hydrochloric acid then a positive reaction results, a red colour being formed.

*Di-methyl-amidoazo-benzene.*—An alcoholic solution of this body is used. It gives a pink-red colour with free hydrochloric acid even in as weak a solution as 1 in 100,000. I have found that the characteristic colour is also given by lactic acid in strength as weak as 1 in 10,000 and by acetic acid in strength as weak as 1 in 2000. Hence this reagent is not nearly so trustworthy, since organic acids may give a reaction for free hydrochloric acid when it is not present. On several occasions I have found that the gastric contents gave a positive reaction with this reagent when subsequent investigations showed no free hydrochloric acid but organic acids to be present. The reagent does not react to hydrochloric acid combined with proteid.

*Tropæolin OO and Congo red.*—I have found that these reagents are unsatisfactory. They are less delicate than the preceding and react to organic acids.

D. *Testing for organic acids.*—A qualitative test should be made, a weak solution of Uffleman's reagent being added to the filtered gastric contents. The development of a distinct yellow colour indicates lactic acid. Acetic and butyric acids do not produce the marked yellow colour given by lactic acid even in as weak a strength as 1 in 5000. The quantity of organic acids is given with sufficient accuracy for practical purposes by the difference between the total acidity (expressed as hydrochloric acid) and the active hydrochloric acid as estimated by the method described above. Of course, the organic acid may be directly estimated by ethereal extraction (Shufflebotham method). I do not find this usually necessary.

E. *Conclusions to be drawn from the results of an analysis.*—Careful analyses of the gastric contents have been made in upwards of 60 cases at St. Mary's Hospital during the last four years. In most of these the diagnosis has been confirmed by operation or post-mortem examination. The following are the conclusions which have been drawn from the results of the above analyses.

*In gastric and duodenal ulcer* the total acidity is high—e.g., from 0·2 to 0·3 per cent., or even more; this consists almost entirely of "active hydrochloric acid." Free hydrochloric acid is usually present. Organic acids are generally absent. Peptone is absent or present in only small amount.

*Temporary dyspepsia (e.g., vomiting from migraine).*—Here the acidity is about normal—e.g., from 0·1 to 0·2 per cent.—and it consists chiefly of "active hydrochloric acid." Free hydrochloric acid is present or absent according to the nature of the food taken before the vomiting. Organic acids may be present in small amount. Albumose and peptone are often present in considerable amount.

*Gastric carcinoma.*—Here it has been found that the nature of the gastric contents varies very much indeed with the position of the growth in the stomach. Thus, in involvement of *the cardiac portion of the stomach* the total acidity is low, usually under 0·04 per cent.; free hydrochloric acid is never present. "Active hydrochloric acid" is present in very small amount—e.g., about 0·02 per cent.—or frequently absent. Organic acid is generally present, also traces of mucin may be found, but little or no albumose or peptone. In involvement of *the pyloric portion of the stomach* the total acidity is sub-normal but still it may be considerable—e.g., from 0·05 to 0·1 per cent.; it is always much higher than when the cardiac portion of the stomach is affected. Free hydrochloric acid is absent. Active hydrochloric acid may be present in fair amount but it scarcely ever exceeds 0·1 per cent. Organic acids are present generally. Mucin and albumin and often quite large amounts of peptone are found.

So great is the difference between the chemical composition of the gastric contents when the cardiac and pyloric portions are involved that the result of the analysis in a case of gastric carcinoma not only enables a diagnosis to be made but also gives a clear indication of the position of the growth in the stomach.

St. Mary's Hospital, W.

[1] THE LANCET, Sept. 15th, 1900, p. 795.
[2] THE LANCET, August 1st, 1903, p. 313.
[3] Allchin's System of Medicine.
[4] Bain's Medicine.

## SOME REMARKS ON ELECTROSTATIC TREATMENT.

BY J. CURTIS WEBB, M.A., M.B., B.C. CANTAB.

IN these days, when so much more attention is being bestowed on the scientific application of electricity to the treatment of disease than was formerly the case, I think there should be no excuse needed for bringing before the medical profession a modality as yet little used in England. In America, and also in France, an efficient electrostatic machine forms an important item in a medical man's equipment, but in this country many medical men are either entirely ignorant of its potentialities or are inclined to classify it rather as an appurtenance of the charlatan than as a potent means of relieving human suffering. Why this is so is difficult to explain. True, the initial cost is heavy: for a thoroughly trustworthy machine it is certainly far in excess of a d'Arsonval apparatus, with which it is usually compared, but, on the other hand, the static machine can do all that the d'Arsonval equipment can effect, and more. Incidentally, by a suitable step-up arrangement,

an induction machine can give an amperage as high as a d'Arsonval, but it is as yet far from proved that any real good is effected by a high amperage. If we choose to utilise our Leyden jars we can get as high a frequency as the "highest frequenter" could desire, but is such high frequency always necessary or even to be desired? Let us be candid and acknowledge that we do not know exactly *how* these high potential currents act any more than we know exactly how potassium iodide acts. No one will deny the proved value of the latter; why then deny the possible value of the former? If the current from the static machine, one of low amperage and high potential, be as efficacious as that from the d'Arsonval apparatus, which is of high amperage, the possible risks from the latter are abolished. With a statical machine we have our potential under control and we have a multitude of modalities at our command—e.g., sparks of various kinds, brush, breeze, vacuum tubes, static induced, and last, and most important, the Morton wave current, with or without secondary interruptions. And further, and this is a point on which I cannot lay too great stress, there is the enormous difference as to whether we connect our patient to the positive or to the negative pole. I, too, was once an unbeliever, but I have over and over again proved to my own satisfaction that while the current from the + pole is essentially stimulating, that from the − pole is a sedative. Patients have for themselves detected the difference and while expressing themselves benefited by the one have been unable to bear the other.

It is important to realise from the start the characteristics of the static wave current, for that is the form to which all the other modalities are either accessory or subservient. It is essentially an oscillating one-pole current, with power to use either the + or − pole, as desired, of high or low potential, and of great or small frequency, under perfect control, painless during administration, and of such amperage as never to endanger the life of the patient, who, being insulated, is repeatedly charged and discharged synchronously with the interruptions at the spark gap, and owing to this insulation experiences the constitutional effects peculiar to currents from one pole of an induction machine, the local effects being produced under the surface and in the immediate neighbourhood of the electrode.

And here let me say at once that to get the best results, or, indeed, any real results, from a static machine it must be under the personal supervision of the medical man himself who has studied it. There are so many ways of applying the current, each one suited to certain diseases and certain temperaments, that it would be hopeless to send a patient to an institution not under the care of a medical expert for "static treatment." I believe there is only one recorded instance where a "bow drawn at a venture" sped its shaft with any efficacy, and "blazing into the brown" is notoriously uncertain, and the haphazard application of electrostatic currents can but end in disappointment for both patient and medical adviser and in loss of repute for a powerful weapon in our medical armamentarium.

The exact effects of these currents have been well classified by Snow, to whom we are indebted for much of our knowledge of this form of electric application. They may be divided into, A, local; and B, general.

A. *Local.*—1. Removal of the effects of stasis, with absorption of plasma and detritus, thereby lessening pain, and inducing reabsorption of fibrin, organic and inorganic salts—the results of defective metabolism. This is best brought about by the "wave current," which causes what I can most satisfactorily describe as a "histological massage." Every individual cell of the lymphatics and arterioles, under the direct sphere of the electrode, pulsates synchronously with the discharges at the primary spark gap, the rate of which is under absolute control, and this histological massage is entirely painless and should not cause contractions of the muscles as a whole, though this effect can be produced if the operator desires. 2. A rubefacient effect can be secured by the brush discharge. 3. If an ulcer or burn be under treatment in a short time the surface becomes coated with what may be likened to collodion, showing the coagulation of albumin, and any offensive odour is destroyed by the ozone liberated from the applied electric discharge.

B. *General.*—1. Equalisation of blood current and general lowering of arterial tension. In a patient of mine, aged 71 years, 20 minutes' treatment brought the blood pressure down from 180 to 150 millimetres of mercury, the pressure being taken at the radial artery with an Oliver's hæmodynamometer. 2. An effect on the nervous system, general or local, stimulating or sedative, according to the modality and to the current, whether + or −, employed.

The diseases where electrostatic currents find their main field of utility may be deduced from the above description. They are:—

1. All acute or chronic inflammations not due to microbic origin or to pressure of a growth, congestion of the liver with constipation, chronic inflamed joints, inflammation of nerves or of their sheaths—e.g., neuritis, neuralgias, lumbago, sciatica (and here I may put in parenthesis that I have had the greatest satisfaction in the treatment of these and allied conditions, whether they be of rheumatic origin or not), ulcers, certain skin troubles, inflammatory glandular swellings, &c. Certain laryngeal affections form another class that is greatly benefited by the wave current. Chronic or subacute catarrh of the vocal cords, leading to hoarseness, or even aphonia, or to the loss or diminution of the power of singing, often yield readily to this modality. Singers who have "tired" their cords and feel that dragging sense of fatigue after singing, get their voices wonderfully toned up and strengthened by static electricity.

2. Owing to the power of the electrostatic current of contracting the unstriped muscular fibre of blood-vessels I have had excellent results in its use in cases of hæmorrhoids, especially in those conditions where the veins of the mucous membrane of the rectum are rather of a varicose character. Where there are large dilated clumps of veins operation may often be necessary but I would always be inclined to try electric treatment before resorting to a procedure that is often intensely painful and not infrequently has to be repeated. I have had more than one good result, too, in cases of anal fissure where both I and my patient have had every reason to be satisfied with the healing properties of the ozone evolved from the vacuum tubes.

3. In the cases of nerve diseases electrostatic treatment finds a wide field of usefulness. In early cases of locomotor, and in those affections due to inflammation of the cord or meninges, it has been found, though I regret I have not had an opportunity of personally proving this, that great good can be done, if not actually in effecting a cure, at least in arresting the progress of the malady. I have reason to know of its efficiency in cases of neuralgias, headaches, spasmodic dysmenorrhœa, functional neuroses, &c. In neurasthenia, with all its protean manifestations, I hold that we have no remedy to equal the one under consideration. In those cases, all too common in our present day of over-civilisation, complaining of constant backache, headache, continued sense of fatigue and inability, or in the case of "City" men who describe "loss of nerve," irritability, insomnia, loss of power of application or of decision, getting over-worried, in fact sufferers from "brain-fag," I know from my own results its enormous value. And if it were these classes of cases alone that were benefited by electrostatic treatment it would deserve the most serious consideration of every medical man to whom such patients come in the hope of getting relief. As a tonic it is unequalled, if by a tonic we understand that which either by soothing or stimulating restores to the normal a fellow creature whom objective disease or subjective symptoms have reduced to a condition of actual suffering or discomfort.

Bina-gardens, S.W.

## A NEW ELECTRO-CYSTOSCOPE.

BY WILLIAM K. OTIS, M.D.,

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OVER 25 years have passed since the invention of the electro-cystoscope by Nitze, and although many modifications of it have been presented during this period no one has succeeded in improving the ocular apparatus, so that the cystoscopes of to-day are no better than those manufactured by Hartwig or Leiter in 1887. The real optical difficulty which prevents an enlargement of the field or an increase in illumination in the Nitze instrument is due to the use of the prism as a means of diverting the light rays in order to obtain a rectangular view. From the opening of the window, or other face of the prism, in this instrument the rays of light must always travel a distance within the prism equal to its depth, so that if the angle of the lens be widened with a

view to enlarge the field this increase will be unavoidably cut off by the sides of the prism. In other words, if you attempt to increase the size of the field by increasing the angle of the lens you simply succeed in seeing the sides of the prism. Moreover, it is necessary to have the prism proportionally so large that the telescope can have but a small lumen compared with the outside calibre of the instrument and thus a large amount of valuable light is lost.

After a series of experiments extending over several years in which I have been greatly assisted by Mr. Reinhold Wappler, I have succeeded in eliminating the prism by substituting in its place a hemispherical lens, the plane surface of which is silvered, a portion of the circumference filling and closing the window in the outer tube of the instrument. This procedure is, in reality, equivalent to the addition of plano-convex lenses to the superior and anterior faces of the prism.

lens. The proximal end consists of a funnel eye-piece with a moveable collar at its apex to which is fastened a small flat fork or crotch, the prongs of which pass on either side of the screw on the shaft and serve to clamp the telescope firmly to the sheath with the thumb-nut, at the same time allowing the telescope to turn on its own axis. A partial rotation of the telescope in this collar causes the lens at the end to slide from the window of the sheath, the opening then being filled by the back of the telescope, the lens facing the back of the sheath. In this way the cystoscope is introduced into the bladder, the lens being entirely protected from any contact with blood, pus, or lubricant, which is most desirable when using a fluid medium and absolutely essential when air is employed.

After the instrument is well in the bladder the lens is brought into the window by rotating the telescope, a small knob on the ocular funnel indicating its correct position.

FIG. 1.

The Otis electro-cystoscope. (Half actual size.)

This instrument resembles in general the cystoscope of Nitze but differs from it radically in several most important particulars. It consists of two separate parts, the external catheter, or sheath, carrying the illumination and the internal, or telescope, in which the entire optical apparatus is contained. The distal extremity of the external portion consists of a short beak (half an inch) set at an obtuse angle containing the electric lamp in its tip. This lamp is of peculiar construction and deserves special mention on account of its wonderful brilliancy and its freedom from heat. It is set so as to form the extreme end of the instrument; the light, unimpeded by any metal hood, illuminates the whole interior of the bladder. Its size is equal to the full external calibre of the instrument and it is set in a metal socket or tip which screws into place after the manner of the lamp in the Nitze model, which a long experience has convinced me is more convenient, when changing the lamp, than the method of Leiter, also used in the French instruments. One pole of the lamp is carried on the metal of the shaft itself, the other by a specially insulated wire which does not encroach upon the internal calibre of the shaft and permits the use of the telescope several sizes of the French scale larger than that of other instruments, thus allowing the passage of a greater amount of light with a corresponding brilliancy of field.

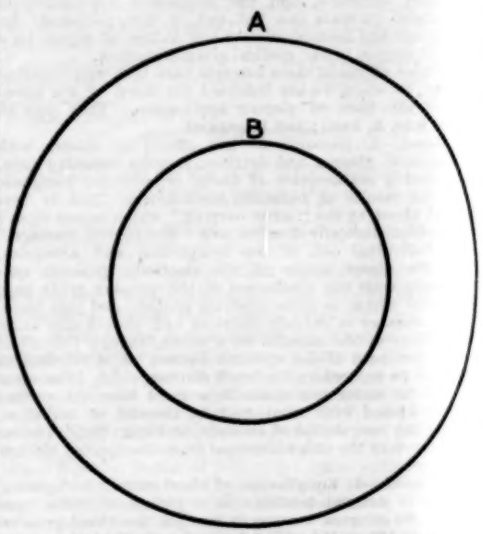
The shaft has a working distance of eight inches (i.e., from the centre of the window to the apex of the ocular funnel) and in the commercial instrument a calibre of 20 F. At the angle where the shaft joins the beak on its superior surface an oval window is cut through the metal to expose the lens of the telescope when in place. On the superior surface of the proximal end is a short screw, at right angles to the shaft, on top of which a small ball is fixed which indicates the position of the beak when the latter is in the bladder. A thumb-nut on this serves to clamp the telescope firmly in position. On the inferior surface of the proximal end of the shaft is a metal post with an insulated core which carries the electric terminals of the lamp and connects with the cords from the battery by a screw socket. A turn of this screw permits the lamp to be lit or extinguished at the will of the operator. For the sake of simplicity this post has been made immoveable and not working in a collar as in some instruments. Small stop-cocks communicating with the internal calibre of the instrument have been placed just above the post for the introduction of air, for use when it is considered desirable to use air instead of fluid as an examining medium.

The telescope contains the entire ocular apparatus and fits easily in the sheath. On the superior surface of its distal end is a window cut in the form of the upper opening of a whistle, in which is set the hemispherical

Should the fluid in the bladder become clouded at any time on account of bleeding or the presence of pus it is only necessary to remove the telescope; the sheath, acting as a large catheter, permits the rapid withdrawal of the fluid contents of the bladder, which can be refilled, the telescope replaced, and the examination continued with but little loss of time and without removing the instrument, a much more effective method than that employed in the so-called irrigation cystoscopes all of which are necessarily feeble and ineffective.

To describe this instrument in detail without becoming prolix is difficult and as it is the practical advantages which interest most surgeons I shall enumerate these as they occur in this cystoscope. A field having an area four times as large as that of any other rectangular cystoscope, so that it is practically impossible to overlook a pathological condition in the bladder which might easily escape the smaller field of

FIG. 2.




A, Field of Otis cystoscope, distance of four centimetres.
B, Field of Nitze cystoscope, same distance.

the instruments now in use. Not only is this accomplished without loss of definition, but the field of this new instrument is rendered clearer and brighter on account of the more powerful illumination of its lamp, the greater calibre of the telescopic tube, and the arrangement of the lens system. After an extended practical experience and a thorough familiarity with the cystoscopes of European manufacture I do not hesitate to say that the field in none of them compares in distinctness and brilliancy with the picture as seen through this cystoscope covering a four times greater area. Nor have they the penetrative power or the ability to see distinctly at a distance from the object, as no matter how much the bladder may be distended a clear image may be obtained from any part of its interior with this instrument.

The outer circle (A) represents the field of the author's instrument at a distance of four centimetres from a flat surface and the inner circle (B) represents the field of the Nitze instrument at the same distance. Without referring to the optical formulæ by means of which these comparative areas have been arrived at the sizes of the fields in the illustration were obtained by the common-place method of clamping the instruments at a given distance from a highly-illuminated sheet of paper and beginning at the extreme upper edge of the field, as seen through the telescope, drawing a line through the centre from where the point of a pen first came into view to a point just opposite in the circle where the pen-point disappeared, the resulting line being used as the diameter of a circle representing the field of the instrument.

The arrangement and quality of the lamp and the large calibre of the telescope rendered possible by the special device for insulating the second pole of the lamp and the elimination of the prism give an illumination of field better than in other cystoscopes, on the principle that more light will pass through a large tube than a small one. The lamp, the filament of which is prepared by a secret process necessitating a very high vacuum, has such a low amperage that it emits almost no heat, making it impossible to scorch or, as has happened, seriously burn the bladder wall. This cool, powerful lamp, together with the protection of the lens from being smeared during introduction, permits the use of air as the examining medium should this be considered advisable. The short beak and absence of the flat top and sharp angular sides of the prism render it easy of introduction and less liable to cause bleeding. Should the medium in the bladder become clouded it may easily and rapidly be withdrawn and replaced without removing the instrument.

New York.

## A CASE OF PYREXIA FOLLOWING CHILDBIRTH TREATED WITH ANTI-STREPTOCOCCIC SERUM.

BY P. H. WARD, M.R.C.S. ENG., L.R.C.P. LOND.

HAVING read with considerable interest Mr. A. G. R. Foulerton's and Dr. Victor Bonney's article in THE LANCET[1] on puerperal infections I think it might serve a useful purpose to put the following case on record.

The patient was an elderly multipara. Her two youngest children were aged five and 17 years respectively. There was a history of several miscarriages and at previous confinements trouble with the placenta which on one or two occasions had been taken away in small pieces. The last confinement five years previously had been easy and normal. I was called at 9.30 A.M. on April 2nd and was informed that the waters had broken at 11.30 P.M. the previous night. The patient was not in labour. Abdominal palpation to ascertain the position of the child proved unsuccessful on account of considerable tenderness especially over the suprapubic region and to the left of the middle line low down. On the 3rd, at 3.30 A.M., I was again called. The patient had been in labour since 1.30 A.M., the labour having commenced 24 hours after rupture of the membranes. The os was of the size of a florin and the head presenting in the first position. The pains were weak with long intervals and disappeared altogether when the patient lay down. The os dilated very slowly but once dilated labour proceeded rapidly and a very large child (weighing 11 pounds) was born at 9.30 A.M. Considerable hæmorrhage occurred after the birth of the child. The placenta was delivered by external compression. The membranes seemed rather firmly attached and had to be twisted many times before sufficient traction could be made on them to remove them without tearing. Examination of the placenta revealed that the membranes had ruptured high up near their placental attachment. They were very friable. The placenta looked unhealthy, also being extremely friable. After delivery of the placenta the patient became faint with a weak and irregular pulse. Extractum ergotæ liquidum (one drachm) was administered. An urgent message made it compulsory for me to leave though the patient's condition was somewhat unsatisfactory. I was recalled shortly after as the patient was flooding. This was controlled by external compression of the uterus. She was ordered a mixture containing extractum ergotæ liquidum every four hours. The same evening the temperature was normal. The patient in all lost three or four pints of blood.

On April 4th at the morning visit the patient was feeling well; the temperature and pulse were normal. At the evening visit she complained of feeling hot and was perspiring freely. She had shivered during the afternoon. Her temperature was 102° F. and the pulse-rate was 120, weak, and irregular. A vaginal douche was ordered. She had a second rigor the same evening. On the 5th, at the morning visit the temperature was 102·8° and the pulse was 120. The patient was given calomel (six grains) to be followed in four hours by magnesiæ sulphas (two drachms), also tinctura ferri perchloridi (half a drachm) every two hours. The vagina was also douched. At the evening visit (6.30 P.M.) the temperature was 103°; the pulse was over 120, very weak, and irregular. The bowels had acted freely. An intra-uterine douche of hydrargyri perchloridum, 1 in 2000, followed by 1 in 4000, was given at 8 P.M. When the temperature had risen to 104° ten cubic centimetres of polyvalent antistreptococcic serum (B. W. and Co.) were injected. On the 6th the patient had slept fairly well. The bowels had acted eight times since the administration of the calomel. The temperature was 102·8°; the pulse was 120, stronger, and more regular. The discharge was scanty. The uterus reached half way to the umbilicus and was tender over precisely the same place where tenderness had been most marked before delivery. The uterus was washed out with hydrargyri perchloridum, 1 in 4000, and I injected ten cubic centimetres of polyvalent antistreptococcic serum. Unfortunately I had no more of the serum left after this injection. On the same evening Mr. W. Watkins, whose practice I had just taken over, kindly saw the patient with me. She refused chloroform, so Mr. Watkins explored the uterus with his finger without an anæsthetic. He removed a shred of membrane and two pieces of placenta of about the size of a hazel-nut from the left cornu of the uterus. These pieces of placenta were very firmly adherent. They were distinctly foul smelling. The uterus was douched with hydrargyri perchloridum, 1 in 2000, followed by 1 in 4000. An iodoform pessary was left in the vagina. The temperature was 102° and the pulse was 120. On the 7th, at the morning visit the temperature was 102° and the pulse was 112. The patient was suffering from diarrhœa. The discharge was scanty and hardly coloured. The milk was becoming scanty. At the evening visit the temperature was 102·8° and the pulse was 112. An intra-uterine douche of lysol was administered both in the morning and evening. On the 8th, at the morning visit the temperature was 104°. The diarrhœa was better, bismuth and liquor opii sedativus having controlled it. The tinctura ferri perchloridi was omitted. The patient complained of pain over the uterus. The discharge was not coloured and scanty and there was almost absolute suppression of milk. She was intensely anæmic. The tongue was furred but moist. The uterus was washed out with lysol. At the evening visit the temperature was 102° and the pulse was 112. The uterus was again washed out. A fresh supply of antistreptococcic serum having been obtained ten cubic centimetres were injected. The uterus was washed out with lysol. On the 9th, at the morning visit (8 A.M.) the pulse was 100 but weak and thready; the temperature was 102°. The patient complained of diarrhœa. There was no discharge. Pain was felt in the pubic region on coughing. She had had a restless night and complained of weakness in the head. She said she wanted to think but could not. The anæmia was more marked. At 9.30 A.M. the temperature was 103°. Ten cubic centimetres of antistreptococcic serum were

[1] An Investigation into the Causation of Puerperal Infections, THE LANCET, April 8th (p. 915) and 15th (p. 992), 1905.

injected. The uterus was washed out with perchloride, 1 in 2000, followed by 1 in 4000. In the evening the temperature was 103°. On the 10th, at 8 A.M. the pulse was 92 and the temperature was 101°. At 10 A.M. the pulse was 92 and the temperature was 99·8°. A lysol douche was given. In the evening the temperature was 102·8° and the pulse was 92. A lysol douche was again administered. A powder containing pulvis ipecacuanhæ compositus (ten grains) and quiniæ sulphas (ten grains) was given at 9 P.M. On the 11th, profuse sweating had taken place during the night; the temperature was 97·8° and the pulse was 88. The same evening the temperature was 99°. After this the patient slowly recovered. The milk gradually returned but the discharge only became very slightly pinkish in tint. A week later she had a slight shivering attack and the temperature ran up to 101° but it came down the same day and remained normal. During convalescence the temperature was constantly subnormal in the morning.

*Remarks.*—There was apparently some morbid intra-uterine condition before the confinement, for tenderness was most marked. Also during labour the patient was not able to aid the expulsion of the child by bearing down. She explained afterwards that when she tried to bear down it was "as if something was tearing inside her womb." Within 36 hours of delivery she had two rigors and a temperature of 102° with a weak irregular pulse of 120. Every symptom of severe septicæmia followed, suppression of lochia and mild diarrhœa being most marked. The most striking feature of the case was the patient's cheerful disposition. She made light of her illness, so much so that each morning her husband cheerfully informed me there was a great improvement and hardly realised the gravity of the case.

About 48 hours from onset of the pyrexia two very small pieces of stinking placenta were removed from the uterus. The temperature, however, remained raised for three days longer. Was this pyrexia due to toxæmia already resulting from the retained placenta or was it due to an additional streptococcic or other infection? The first two injections of antistreptococcic serum apparently had little effect. On obtaining a fresh supply of serum two further injections were made, the temperature falling to 99° within 24 hours of giving the last injection. I think at least this warrants a further trial of the serum treatment if nothing else. No ill-effects were observed from any of the four injections, there being neither pain nor the slightest inflammation at the site of injection. Within the 12 hours preceding attending on this case I had opened a foul axillary abscess and also a whitlow. After returning from these two cases I had on each occasion carefully sterilised my hands, scrubbing them with lysol, hydrargyri perchloridum 1 in 1000, and finally immersing them in carbolic 1 in 20. Also bearing in mind that I had opened these abscesses, at the confinement I was more than usually careful, sterilising my hand before every examination and making as few as possible. I, however, wore the same suit of clothes.

Murraysburg, Cape Colony.

## DISLOCATION OF THE CARPAL SCAPHOID.

By ANDREW FULLERTON, B.Ch. R.U.I., F.R.C.S. IREL.,
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DISLOCATIONS of the carpal bones are exceedingly rare. Deaver[1] says that "the separate carpal bones are rarely if ever dislocated." Makins[2] mentions that "the scaphoid and semilunar have been seen to be dislocated, usually in compound injuries." Erichsen[3] describes dislocations of the os magnum, pisiform, and semilunar. Cheyne and Burghard[4] think that "dislocation of one carpal bone from another, although sometimes met with, is of such extreme rarity that the accident does not require any special mention." Hamilton[5] says: "I have found no account of an example of simple dislocation of single carpal bones except in the case of the os magnum, pisiform, and lunare." Gant[6] mentions dislocations of the semilunar, cuneiform, pisiform, os magnum, and unciform as having occurred but does not appear to have met with or heard of a case of dislocation of the scaphoid. Haughton and Holt[7] discuss the frequency of fracture and dislocation of the proximal row of carpal bones with displacement of fragments but dislocation of the scaphoid pure and simple is not mentioned.

The following case came under my notice at the Royal Victoria Hospital, Belfast, during 1904. A man, aged 50 years, about three years ago slipped on the pavement owing to the frost. He put his left hand behind him to save himself and fell heavily on the front of his wrist. On rising he noticed a small lump on the back of his hand. He was treated at hospital for a short time and went back to work, the nature of his injury not having probably been recognised. Ever since his wrist had been stiff. About three weeks before his recent attendance he knocked the back of his hand and applied at the Royal Victoria Hospital for further treatment. On examination a small hard projection, irregular in shape, could be felt on the dorsum of the left wrist, the middle being about three-quarters of an inch from the radial border and just below the level of the styloid process of the radius. The carpus was stiff and painful and the bones appeared to be welded together. Flexion and extension were very limited. Several skiagrams were taken and revealed an undue sharpness of the styloid process of the radius and a want of distinctness and separation of the bones in the centre of the carpus. It would appear from the skiagrams that the os magnum had become fused or closely joined to the neighbouring carpal bones.

*Operation.*—A longitudinal incision was made on the dorsum over the projection. The scaphoid was found displaced backwards and rotated so that the tubercle presented on the back of the carpus. The bone was removed and two small fragments, flat and irregular in shape, about one-third of an inch in length and rather less in breadth, were found lying loose in the cavity left. It could not be determined whether these were originally chipped off from the radius or one of the carpal bones. He probably fell on the prominence of the scaphoid in front and so displaced the bone backwards, taking off a small portion of the radius (hence the sharpness of the styloid process) and probably fracturing one or more of the other carpal bones. The callus thrown out would probably account for the welding seen in the skiagram. The tip of the styloid process of the ulna had evidently been broken off.

The removed scaphoid presents the following appearances. The superior surface is devoid of articular cartilage, smooth, and eburnated over a triangular area corresponding to about half the total extent. This area is confined to the anterior portion of the articular surface for the radius. The posterior portion is rough and non-articular. The inferior surface (that for articulation with the trapezium and trapezoid) is devoid of cartilage and eburnated at its anterior extremity. The posterior portion is rough and non-articular. The dorsal surface is normal. The anterior surface appears to have had a small fragment broken off (perhaps one of the loose fragments above referred to). The external surface was slightly damaged during removal. The internal surface for articulation with the semilunar above and the os magnum below, has become rough, owing, no doubt, to want of apposition of the normal articulating bones. It would therefore appear that the scaphoid articulated at the two eburnated surfaces only and these are diametrically opposite to each other.

Healing of the wound took place by first intention but owing no doubt to injuries to other carpal bones the movements at the wrist joint and carpus are limited.

Belfast.

[1] Surgical Anatomy, vol. i., p. 255.
[2] International Textbook of Surgery, vol. i., p. 632.
[3] Science and Art of Surgery, vol. i., p. 657.
[4] Manual of Surgical Treatment, part iv., p. 45.
[5] Fractures and Dislocations, sixth American edition, p. 721.
[6] Science and Practice of Surgery, vol. i., p. 936.
[7] Haughton and Holt: Journal of the Royal Army Medical Corps, September, 1904, p. 282.

## A CASE OF POISONING BY FLUID AMMONIA USED FOR DOMESTIC PURPOSES.

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A LITTLE four-year old patient of mine has had a narrow escape from death by misadventure. She was playing with a small doll's tumbler and asked her nurse to give her a dose

of fluid magnesia in it. The nurse went to the cupboard and poured out about 40 drops of Scrubb's cloudy ammonia by mistake for fluid magnesia and gave it to the child, who put it at once into her mouth. This caused a severe spasm of the glottis and though some burnt the roof of the mouth and tonsils, in all probability very little was actually swallowed. The child was picked up partly unconscious and brought downstairs to me, as I happened to be in the house at the time. She had uttered no sound and seemed incapable of expectorating. I inverted her and opened the mouth and washed out what I could; she could not swallow but she had just had a large meal and the induction of vomiting removed what little ammonia remained in the mouth and gullet. It was impossible to administer any antidotes, even white of egg caused great pain when introduced into the mouth. Very soon her respiration became impeded with all the signs of œdema of the glottis. The intercostal and epigastric recession became so marked that my colleague (Mr. Gifford Nash) and I decided to prepare the instruments necessary for tracheotomy and I waited all night expecting at any moment to have to perform the operation but towards morning the laryngeal symptoms began to abate. Loud rhonchi and râles were audible all over the chest and the temperature rose at the end of 12 hours to 104° F. The child remained in a dazed, torpid condition; we could not hear what she attempted to say and it was doubtful if she heard when we spoke. She could not take food; white sloughs formed on the palate, fauces, and buccal mucous membrane, and the tongue looked red and raw. Gradually these conditions improved and at the end of a fortnight she had practically recovered but the voice remained weak, uncertain, and raucous.

I am placing this case on record as it seems to me that the danger to the public from fluid ammonia is not an inconsiderable one. There are deaths recorded from either smelling or taking this powerful poison but as it is not included amongst the poisons scheduled in the Pharmacy Act there is no obligation on the part of the seller to dispense it in a poison bottle or to label it "Poison" or "Not to be taken" or "Not to be smelled." In the short time that has elapsed since the misadventure to my patient I have heard of several similar accidents. Another little patient of mine picked up the ammonia bottle in the bathroom, sniffed at it, and dropped the bottle which broke. Fortunately the crash of breaking glass was heard by an elder sister who had the sense to pick the child up and carry her out into the open air. The child was very ill but recovered.

Dr. J. O. Harvey of Bexhill-on-Sea writes to me: "When surgeon to one of the Union Co. South African Mail boats a child of about three years of age was playing with what appeared to be an empty Scrubb's ammonia bottle, in the absence of its nurse, and I well remember the alarming consequences that ensued. Not only was it doubtful whether the child would live but whether the windpipe should be opened, the child remaining in a precarious condition for 36 hours. The amount in the bottle was quite small as it was regarded as an empty one. The whole thing made such an impression on me that I am in the habit when seeing Scrubb's ammonia in the nursery of regarding it as a dangerous thing to be there. It is a preparation largely used in households and by nurses and I have thought that the risks to children are not sufficiently known."

I have not searched the literature of this subject but I have little doubt that many other instances could be collected. I pointed out to the manufacturers of the ammonia fluid the desirability of some warning to the public that their preparation is poisonous but they replied that "the occurrence seems to them to emphasise the gross carelessness of the giver of the dose rather than any omission from their label." I notice, however, that the public are warned against injurious imitations. This accident, or a similar one, might happen in any household or nursery to which fluid ammonia gains access (in this case the ammonia reached the house as an advertisement sample and gained admission to the nursery unknown to the head of the house), for though nurses, and this one in particular, are the devoted slaves of their charges, there are always times of mental aberration and mistake. A fluted unbreakable bottle or a poison label would, in my opinion, tend to minimise these mistakes and secure the greater safety of the public.[1]

Bedford.

[1] According to our analysis the fluid ammonia contains about 120 times its volume of ammonia gas. We drew attention to the danger of toilet ammonia in lay hands in an annotation in THE LANCET of June 6th, 1903, p. 1604, and then suggested that "a warning should be printed on the labels of all bottles containing ammonia for domestic purposes, that the vapour is poisonous in large quantities and that special care should therefore be exercised to prevent the wholesale escape of the contents."—ED. L.

# SLIGHT ERRORS OF REFRACTION AND THEIR INFLUENCE ON THE NERVOUS SYSTEM.[1]

BY C. ERNEST PRONGER, F.R.C.S. ENG.,
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Two years ago I read at a meeting of this society a paper on the influence of slight errors of refraction as a starting point of many functional nerve troubles quite apart from any impairment of vision or local discomfort to suggest eye trouble. I mentioned some of the commoner remote effects of eye strain such as migraine and the various forms of headache, insomnia, vertigo, depression, irritability, choreic movements of facial muscles, and various troubles usually treated as disorders of the liver or stomach. Having referred briefly to epilepsy, *petit mal*, chorea, and hysteria, the question was submitted for your observation and consideration as to whether the real starting point of those varied symptoms to which the name neurasthenia has been given might not be slight error of refraction; that the soil being prepared as it were by its insidious harmful effects, the supervention of shock or any one or more of the long list of causes of neurasthenia which have been suggested might not bring about the crisis or breakdown which at first sight would be looked upon as the beginning of the condition of neurasthenia.

Your reception of my paper was most gratifying to me and it has been still more gratifying to note that the large majority of you have put to a practical test the propositions submitted to you. Some, of course, were sceptical and a few scoffed and it was remarked that "Pronger was going to cure everything with spectacles," and in reply I ventured to predict that we should in time hear much more of this subject. My paper, read and printed in March, 1903, was followed in September by a long article in the *British Medical Journal* on a book, "Biographic Clinics," brought out by Gould of Philadelphia, and it was very pleasing to me to find that many of the main points advocated in that book were identically the same as in my own paper. About 12 months later an article by Snell of Sheffield on Eyestrain as a Cause of Headache and other Neuroses appeared in THE LANCET[2] in which he quoted freely from Gould's book and corroborated it in detail.

From the dates given in some of the cases in my paper it will be seen that this special subject has engaged my careful attention for more than ten years (my first paper on this subject was in 1895) and Gould, in a letter recently received from him, tells me that he has long been urging this subject upon the profession. Now, when two men working upon the same lines and quite independently for some years arrive at practically the same results it would seem probable that their conclusions would be fairly accurate. More especially should it be the case in regard to these slight errors of refraction, seeing that many of the remote effects of the higher degrees have been recognised and recorded.

In continuation of my paper of two years ago I want to say something about neurasthenia, if I may venture to discuss a subject which has hitherto been generally looked upon as quite outside my department and belonging almost exclusively to the province of medicine. Now if we consider for a moment the many suggested causes of neurasthenia, and let us take for example a very common one, worry, we are at once struck by the fact that out of large numbers subject to this influence only one here and there actually breaks down under it. Is it that the worries and anxieties of these few are so much greater than those of the others, or is it that the nervous system is less stable, that there is some predisposing cause which renders it less able to resist the tax put upon it? We might go further, for in many cases of neurasthenia one of the earliest symptoms observed is a disposition to worry about the merest trifles and in such cases if really great worries or anxieties were to crop up a

[1] A paper read before the Harrogate Medical Society on March 30th, 1905.

[2] THE LANCET, April 30th, 1904, p. 1181.

breakdown would readily occur. Is the worrying cause or effect?

It behoves us, therefore, to search for such a cause as would be likely so to affect the nervous system as to predispose it to break down under the influences which have been suggested as the causes of neurasthenia. We have such a cause in refractive error, and this is not merely a theoretical suggestion on my part but the conviction which has resulted from actual observation of large numbers of cases during many years and the careful following up of the results of treatment. A rather striking instance occurs to me which illustrates the point I wish to impress upon you.

CASE 1.—A few years ago I prescribed glasses for a medical man well known to you all for the correction of astigmatism, in spite of the fact that up to that time he had considered that his eyes were normal; in fact, they had been tested and he had been told so. Some time after this he had occasion to go to Ireland, as he had frequently done before, but had always dreaded the journey as he was invariably violently sick. On his return he came to me and told me that he had had a very rough passage both ways but he had not been in the least sea-sick and that he attributed this to the glasses. In this particular instance the motion of the sea was not by itself sufficient to upset him, the additional influence of that slight error of refraction having been removed. The scepticism with which this incident would be received by many and the ready explanation given that it was merely a coincidence suggest that I should pursue the case a little further. The same patient was also a great sufferer from train sickness, a not uncommon result of astigmatism. With his glasses on he can now take a long journey without inconvenience. Here again the train journey would be the obvious cause of his trouble, the more important but less apparent cause being slight error of refraction. It seems to me not unreasonable to suppose that the same thing might happen in other functional nervous derangements and why not in some of those conditions called neurasthenic?

I will now take two cases of neurasthenia having many points in common in which this contention appears to be borne out.

CASE 2.—A man, aged 51 years, married, consulted me on May 8th, 1903. He had led an outdoor life, learning farming until 24 years of age, and enjoyed good health. He then began to study for the ministry but his studies were much hampered by severe headaches. He persevered, became a minister, and eventually occupied a position of great responsibility which involved much hard work and anxiety. He began to suffer severely from insomnia, vertigo, and extreme depression, and finally his nervous system broke down completely. He was treated as these cases usually are, first by his family medical adviser and afterwards by another, both personal friends, who took the greatest interest in his case. He also saw an ophthalmic surgeon in town who prescribed glasses which might be used for reading but the patient seldom used them as he could see well enough both for distance and near work for all visual purposes. A London consultant then advised a prolonged stay in Switzerland and this was carried out but with a most disappointing result. A course of treatment at Woodhall Spa was next tried, but being no better he was afterwards sent to Harrogate. The medical man whom he consulted sent him at once to me and abstained from any other treatment as he wished to see whether spectacles would have any effect. The patient told me that he could see quite well and did not believe the eyes could have anything to do with it but was willing to try anything, although he quite despaired of ever being any better. Six months later he writes: "After ten weeks of hard and anxious work I am still holding my own. This is such a joy to me that I am preaching this new treatment wherever I go. After the little confusion which the glasses caused—the perspective of everything being altered—I began to improve in health and for six months have never had any set back. Refreshing sleep became habitual after a long period of insomnia during which I was quite a wreck and with sleep strength began to return and life which had been a burden is now a delight."

CASE 3.—A man, aged 53 years, consulted me in August, 1902. He had suffered much in the same way as the last—occasional severe headaches, great mental depression, and insomnia. He had been obliged to give up his occupation (a shipbuilder) and had been treated by 12 different medical men before consulting the one who sent him to me. He did not then believe that glasses could be of any use but consented to wear them. Having no faith in them he consulted two nerve specialists, one of whom prescribed the common remedy—a prolonged stay in Switzerland. His letter, received on Jan. 2nd, 1905, shows that he has grasped the very point which I wish you more fully to recognise. He writes that his health is vastly improved since first consulting me; that after taking to glasses he had as the result of consulting two nerve specialists carried out a treatment (prolonged stay in Switzerland) which had not been previously tried; that his first long journey after taking to glasses was accomplished without a headache (although worn and tired in other respects), a thing which had not happened for many years and showing that he was getting benefit; and that he is fully of opinion that had he not worn glasses the treatment would not have had such good and permanent effect.

These two cases suggest that however helpful the change of air and scene may be in these cases they are not enough by themselves to cure if there be a slight uncorrected error of refraction in the background; but first correct this and the combination will effect the cure.

In my experience error of refraction is almost invariably present in neurasthenia and I do not mean the infinitesimal amount which physiologists tell us is present in all eyes, but an appreciable quantity such as can be detected and corrected by glasses a quarter of a dioptre upwards. I have often wondered how it was that this association had not been observed, or if so that greater importance had not been attached to it. One reason now occurs to me. Having read a long and able article on neurasthenia in the *British Medical Journal* I was struck by the fact that refractive errors were not mentioned and asked the author what his experience had been in this direction. He told me that the cases he sent to the ophthalmic surgeon were nearly always returned as "normal or practically so." The last two words, "practically so," suggest a great deal. The ophthalmic surgeon (and I speak generally, not of individuals) finds the patient can see $\frac{6}{6}$ with each eye and can read J. 1 without difficulty and makes no complaint of aching or of trouble of any kind connected with the eyes; even headaches may not be a symptom. He, not having had a large experience as a physician or knowing much of neurasthenia, is satisfied with the patient from a visual point of view and reports "normal or practically so." He may or may not have observed slight astigmatism, but if so why saddle a patient with spectacles under such conditions? It is necessary that both the physician and the ophthalmic surgeon should understand the principle which I suggest to you if good is to result. The following is a case in point.

CASE 4.—A physician in a neighbouring town suspected the presence of astigmatism in a boy of 14 years suffering from nerve troubles and sent him to an ophthalmic surgeon, but the report came back as "normal." Not being satisfied the physician asked me to examine the boy and I found a quarter of a dioptre of hypermetropic astigmatism in each eye, axis oblique, and ordered glasses to be worn constantly. The boy got quite well and kept so for 12 months when the mother brought him to me again saying that the symptoms had suddenly all come back. As the result of a fall one of the lenses had dropped out of his spectacles and had been replaced but with the axis in the opposite direction to that prescribed.

Some of you have said that my results are due to suggestion and how well this case would have fitted in with that view but for that little accident.

CASE 5.—One cannot, of course, say what this boy's future might be if the astigmatism were uncorrected but it is quite possible that it might be not unlike that of a patient whom I saw in August last whose error of refraction was very similar. This patient describes his experiences in somewhat emphatic language in a letter four months after his visit to me. He says: "Personally, I can say that life has been much more enjoyable since I visited you. Previously I was intensely irritable and frequently 'cursed myself in my despair.' Latterly I have arrived home from business with a slight surplus of energy and power of concentration which previously was a rare thing for me to do. I have changed my residence frequently, fled to poultry farming once, and generally behaved in a manner which caused my friends to have serious doubts regarding the stability of my mental gear. I now begin to appreciate Carlyle on 'permanency' and can form a plan of life

where previously chaos reigned. It is impossible, of course, to say or conceive what might have been, but my own personal conviction is that I should have been less of an ass if my eyes had not troubled me so persistently. My internal and secret profanity must have at times satiated the devil himself, assuming such a personage to still exist. I sincerely hope that this happier frame of mind will become chronic and that you may long be spared to alleviate the suffering which can only be understood by those who have had to endure it for years as I have done. I have endeavoured to represent to you as nearly as possible my actual feeling on this subject and trust you will excuse my departure from conventional expressions in my effort to truthfully convey my ideas."

One meets with constant variety in the cases sent to one as neurasthenic and it is sometimes very difficult to tell how much is due to functional disturbance and whether there may not be some organic lesion present.

CASE 6.—A patient was sent to me in May of last year in whom no organic lesion had been detected, although she had been seen by several medical men, and yet that patient died in the following November and the necropsy revealed chronic Bright's disease. This patient derived very great benefit from the use of glasses in the relief of her neurasthenic symptoms and the case is instructive in that it shows how necessary it is to bear in mind the possibility of refractive error being present as a complication in cases of organic disease. Had the Bright's disease been recognised her neurasthenic symptoms would no doubt have been attributed to that and the patient would not have been sent to me.

Especially would I suggest this point to you in connexion with gout, for when once that word has been used there is a great disposition both on the part of medical men and patients to attribute all symptoms to that special cause, and but for this complication being overlooked many cases of headache, insomnia, &c., might be speedily relieved. Perhaps it more frequently happens that serious brain or other lesions are supposed to exist in which the results show that the troubles are entirely functional. The following is an illustration.

CASE 7.—The patient, a man, aged 44 years, had suffered for some years from nervousness, dizziness, and headaches and for the last six months had been obliged to give up his occupation. From the severity of his symptoms generally his medical attendant wrote that he feared some serious brain trouble. The medical man who saw the case here asked me to examine him and I prescribed glasses for constant use. The medical attendant at home was at first somewhat annoyed as he had already sent the patient to an ophthalmic surgeon who had found slight astigmatism but had considered it so slight as to be of no special importance. The patient got rapidly better, returned to his occupation, and has since been to Harrogate for a holiday but feels that he does not now require any treatment. This case shows how dangerous it is to ignore slight errors of refraction and how misleading it may be to the physician.

CASES 8, 9, AND 10.—It is always interesting to watch the effects of treatment in cases in which the conditions are similar and in that respect the three following instances are of use. In the spring of 1903 three patients came under observation, all married, all about the same age, in similar conditions of life—one being a solicitor, one a medical man, and one a manufacturer—and having similar symptoms: headaches, irritability, depression, and feeling unfit to continue the ordinary duties of daily life. They had all tried the usual remedies advocated in these cases, special attention having been paid to the functions of the liver. In spite of treatment they had all arrived at that stage in which something must be done, as they could not go on as they were. In all three cases a sea voyage had been prescribed. In all three cases the vision was quite good and there was no complaint of any kind directly connected with the eyes. The medical man came to see me and I ordered glasses for slight astigmatism to be worn constantly and he started for the voyage. The solicitor also went by the same ship but knew nothing of his fellow passenger and he did not consult me before leaving. The manufacturer after hearing my opinion of his case decided not to take the voyage but returned to his duties. The medical man tells me that the long rest and change of the voyage undoubtedly did him a great deal of good and he also noticed that he could read in the train without headache since wearing the glasses which he could not do previously. I, too, have observed that although the glasses are not in any way a necessity from a visual point of view, that he is now never seen without them, in fact, on three occasions he tells me that he has got into bed with them on. The manufacturer has taken no voyage but steadily improved in health and in six weeks reported himself as much better. The improvement continued and I saw him recently in his usual good health and enjoying life again as of old. He was rather indignant at being sent to me as he had been told previously that his eyes were normal, but he tells me he wears his glasses constantly and has done so ever since I first saw him. The solicitor returned from the voyage greatly disappointed as he was little if any better. A few weeks later, being as bad as ever, he consulted me and I prescribed glasses for constant use. In a letter received six months later his wife writes: "My husband is now very well indeed," the "very well" being underlined.

CASE 11.—It is my lot frequently to see instances in which the whole career of an individual has been blighted and changed as the result of a cause which might have been easily remedied had it been detected and its importance recognised. This nearly happened to the writer of the following letter who was considering the question of giving up his post when he was advised to consult me. This advice was a surprise to him as he had always attributed his symptoms to digestive disturbances and had had no discomfort in the eyes and was not conscious of any defect. He wrote me four months after his visit as follows: "I must tell you of the great benefit I have received from the constant use of the glasses you prescribed for me on July 1st last (1903). I had suffered from headaches for many years, the pain being chiefly frontal and at times so acute that the whole of my head felt as though it had been burnt. About three years ago I was subjected to a very peculiar attack; a sudden dizziness overtook me when just awaking from sleep and I fell into an unconscious condition which lasted for about 15 minutes. On recovering I was left with one of those violent headaches. These attacks I suffered from repeatedly and when up and about it required a very great effort to prevent oneself from becoming unconscious. I saw a London specialist who advised the use of bromides but with no definite result. Towards the end of June last Dr. —— advised me to consult you and I have worn the glasses ordered ever since. About ten days after this I had another of those attacks, perhaps the most violent I have had, this occurring early in the afternoon. Previous to this attack I had occasionally discarded my glasses but since then I am never without them. Four months have now elapsed and so far as these attacks are concerned there seems no probability of their return. Before my visit to you lapses of memory were almost a daily occurrence, now they are practically unknown and when in evidence are but momentary. The periods of dizziness have quite disappeared. I feel better in health, my brain is clearer, the headaches have never returned since I wore the glasses, and the state of depression into which I was sinking has entirely passed away."

Were I to assert that error of refraction is responsible for a large proportion of the suicides occurring daily and that it is a potent factor as a cause of insanity that assertion would probably be held up to ridicule and dismissed as absurd. Many things appear at first sight improbable but on reflection much less so, and I will ask you to reflect for a few minutes on this subject. When you have seen, as I have done, in a very large number of cases the effect of uncorrected errors of refraction on the nervous system you will be struck by the great frequency of the occurrence of such symptoms as insomnia, great irritability, extreme depression, impaired memory, difficulty of concentration of thought, lack of self-confidence, apprehension, weariness and exhaustion, and a general want of stability of the nervous system. I have tried to illustrate error of refraction as the cause and the correction of it the cure for these troubles. How often the patients have told me that they have been on the verge of suicide and have used the expression that they were afraid they were going out of their minds. It is quite conceivable that suicide would be more likely to occur in those who had been for a long time enduring the mental torture which results from the conditions I have enumerated and which has rendered life a burden. I will read one or two extracts from actual reports of suicide. "The deceased had been very low spirited and had been under medical treatment for six months; she complained of pains in the head." Another

case: "The deceased had been afflicted with nervous debility about four years." Again: "The deceased had suffered latterly from insomnia and had been much depressed." Again: "The deceased had suffered from influenza, later insomnia, and had been taking narcotics to induce sleep."

CASE 12.—If alongside these extracts you read some of the cases I have already quoted or the following letter it certainly provides suggestive material for consideration. The writer says: "I must tell you how grateful I am for what you have done for me. I should have written long ago but wished to give the glasses a thorough test and to see if the attacks of terrible depression returned which I have suffered from previous to seeing you. I am glad now to tell you I find the glasses a great comfort and have never once had a return of those particular attacks of depression which had hitherto made life a misery to me." Many of you will be able to recall instances of sufferers such as I have described flying to narcotics or alcohol for temporary relief from their distress and no doubt this leads to much of the secret drinking which prevails to so great an extent. In view of the large number of suicides attributed to alcoholic excess ought we not to look upon intemperance as a disease and always try to find out the circumstances attendant upon its commencement as to whether or not it might be due to a remediable cause? We should often be able to trace it to conditions of suffering such as I have described and on examining the patient the presence or absence of error of refraction would be a most important point.

CASE 13.—Errors of refraction are largely on the increase and for two reasons, first, as a result of the great demands made upon very young children by the educational system of the present day, and, secondly, from the fact that they are hereditary. Insanity is also largely on the increase, not only numerically but proportionately. May there not be a connecting link between these two facts? Much that I have said in regard to suicide might also be applied to the question of insanity. To those of you who have had much experience of cases similar to those I have represented it would not, I think, require a great stretch of the imagination to suppose that some of them might lose their mental balance and become insane or gradually drift into a condition of melancholia. Insanity is sometimes attributed to shock, but it would be an alarming thought to feel that any one of us if exposed to a severe shock might suddenly become insane. We could more readily understand such an effect being produced in one who has been a long sufferer from neurasthenia, and this reminds me of a case sent to me recently for neurasthenia. The medical attendant told me that she had on two occasions been out of her mind, the cause being attributed to shock at the loss of her sister who had suddenly disappeared when on board ship and had not been seen since. This patient had for a long time suffered from neurasthenic symptoms and had always been of a highly strung nervous temperament. She had slight astigmatism in both eyes but of different degree. She had previously been sent to two eminent ophthalmic surgeons but they had apparently not attached sufficient importance to the refractive error to insist upon its constant correction.

Again, what a very important position is always assigned to alcohol in the list of causes of insanity. If alcohol by itself were the cause of insanity we should expect even a larger number of cases to result seeing the vast extent of its use and abuse and also more frequent and more rapid cure on its complete withdrawal. In an epidemic of typhoid fever you would not be content to trace the cause to the milk only, but would pursue your investigations to the source of contamination. Would it not be more reasonable in this case also to investigate the condition of the nervous system which led up to the excessive use of alcohol and this would often take us back to that starting point which would suggest a very careful examination of the patient's eyes. The truly distressing condition of some of these neurasthenic cases suggests strongly to my mind that as there so frequently is a complete nervous breakdown, so if unrelieved there might be eventually a mental breakdown. I cannot help thinking that a thorough investigation of the previous history and a very careful examination of the refraction would result in some of the forms of insanity being traced back to those early manifestations of nerve troubles which have been shown to be due to eye-strain.

We have heard lately of pre-cancerous conditions and my suggestion is that we have also a premonitory stage in some of the forms of mental breakdown and that it is during this stage that so much may be done to avert disaster. The following is a suggestive and instructive case in regard to this point.

CASE 14.—The patient, a woman, aged 36 years, was extremely neurotic and had suffered intensely in her head for some years, especially the last four years; not so much actual pain but distressing sensations and a constant dread of going out of her mind. She suffered from great depression and nervousness and could not be prevailed upon to go out by herself. She could not go to a theatre without much suffering after it and, in fact, was practically debarred from all social functions and quite unfit to attend to domestic duties. She had been variously and greatly treated, had changed her place of abode several times, had had a course of Weir-Mitchell treatment, she had consulted five different medical men in Harrogate, a consultant in Leeds, and nearly all the medical men in a neighbouring town in which she lived. She could see quite well without glasses but promised to wear them as she would do anything to get better. She persevered and very gradually but very surely improvement took place. In 18 months after I first saw her she was much better in every way, came from her home to see me unattended by her husband, could go to theatres and attend to domestic matters, and life was now to her worth living. I have recently had a further report from her husband who writes: "When my wife first called upon you she was in such a state of nervous prostration that she was totally unfit to perform or go through the ordinary duties of life and I feel confident that the wearing of spectacles enabled her to battle against her feelings and saved her from a mental breakdown. For the past two years she has never been without her glasses and now her health is nearly restored. May she now leave off the glasses out-of-doors?" This was a very long-standing and severe case and some months elapsed before very marked improvement was observed. Bearing in mind her condition when I first saw her I can only endorse the opinion expressed in her husband's letter.

I would suggest that in all cases of neurasthenia in which error of refraction is present that it should become the routine practice to have that error corrected. If this be skilfully done and the correction perseveringly worn by the patient I am quite convinced that those measures which may be prescribed by the physician for the restoration of nerve tone will be not only more rapidly successful but more permanently so. I must ask you to receive these remarks as far as possible with an open mind, not with the idea of criticising my feeble attempts at the elucidation of such intricate and difficult problems but rather to try to find in them some hints, some suggestions, to help you in your efforts to throw more light upon those obscure subjects.

Harrogate.

# Clinical Notes:

## MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

### A CASE OF SNAKE-BITE.

BY J. C. O. BRADBURY, M.R.C.S. ENG., L.R.C.P. LOND.,
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A SCHOOL-BOY, aged nine years, was brought to the Victoria Hospital, Folkestone, in a cab on April 14th with the history that he had been bitten by a snake which he had picked up on "Sugarloaf" Hill, near Folkestone, about three-quarters of an hour previously. On admission the boy had an anxious and livid appearance, rapid pulse, shallow breathing, and subnormal temperature (95° F.). He complained of feeling sick and had, his friends said, vomited six or seven times within five minutes of being bitten. There was a punctate wound on the index finger of the right hand, the skin around this spot being almost black; the whole hand was also swollen and œdematous, so that it seemed useless to try to localise the poison by a ligature. The swelling increased rapidly and after a period of 12 hours the right hand, arm, and shoulder were much swollen. There was also considerable ecchymosis of the skin, extending even as far as the right breast and halfway up the neck;

this was so marked about one and a half inches around the bite that it presented quite a gangrenous appearance. The child was treated with hypodermic injections of strychnine. Brandy and milk were also administered. Locally hot boric fomentations were applied but the improvement which was at first marked was not maintained, as vomiting started again on the morning of the 16th and continued until 6 A.M. on the 17th. Since then the boy has gradually recovered.

Dr. W. J. Tyson, under whose care the patient was admitted and with whose permission I publish these notes, thinks the case of interest on account of the severity of the symptoms, showing that a large amount of venom was injected; the skin of the finger was exposed at the time of the bite so that there was no material such as a sock or a glove to mitigate the poison. The variety of snake was unquestionably the viper (*Pelias berus*).

Folkestone.

## NOTE ON A CASE OF FATAL PERITONITIS FOLLOWING AN OVERDOSE OF PURGATIVE PILLS.

BY J. D. STAPLE, M.R.C.S. ENG., L.S.A.,
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ON May 12th I was called to see a patient who was a married woman, aged 32 years, and the mother of two children. She informed me that being "a few days over her time" she had taken seven Beecham's pills on the evening of May 11th and four similar pills on the night of the 10th. She thought that this treatment "would set her all right." She stated that she had never had any illness. I found her suffering from excessive diarrhœa and she said that she had vomited twice during the night. On the next day the diarrhœa had practically stopped, no vomiting had occurred, but there was a considerable amount of abdominal tenderness. On the 14th the symptoms of peritonitis were well marked and I called in Mr. D. C. Rayner in consultation who concurred in the diagnosis and treatment. The patient died on May 18th.

The coroner decided to hold an inquest and instructed me to make a post-mortem examination, which I did some 12 hours after the patient's death, Mr. Rayner being also present. We found extensive enteritis and peritonitis but the appendix was perfectly healthy. There was no perforation but the inflammation involved all the coats of the bowel. The internal organs were healthy and the deceased was not pregnant. The jury returned a verdict that death was due to peritonitis caused by the excessive amount of pills. I recently read an advertisement in one of the London halfpenny newspapers stating that "females especially will find that Beecham's pills will restore free and regular conditions," a statement which may certainly be described as somewhat ambiguous.

Bristol.

## NOTE ON SUCCESSFUL VACCINATION AFTER THE ONSET OF SMALL-POX.

BY FRANK ROBINSON, M.D. VICT., D.P.H. R.C.P.S. ENG.,
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IN a recent issue of THE LANCET[1] Dr. J. Coote Hibbert records a series of cases of considerable interest, especially to those engaged with any frequency in the differential diagnosis of small-pox. He attempted vaccination in 20 cases of small-pox after the appearance of the eruption and obtained a successful result in 11 instances. In four cases success is stated to have been evidenced by indurated raised papules, while seven presented typical vesicles. Possibly a difference of opinion might be entertained with regard to the four cases in which the local evidence of success was indicated by papules. The seven instances, however, in which typical vesicles were obtained, which ran the usual course of vaccinia would appear to establish Dr. Hibbert's point that successful vaccination after the appearance of an eruption does not exclude a diagnosis of small-pox.

In a thesis[2] relating to small-pox in Bradford in 1894 I recorded a similar series of cases to those of Dr. Hibbert, which, I think, tends to strengthen his contention. My notes are not now available, so I am unable to give a detailed account, but must content myself with quoting the broad facts as they appear in the thesis in question. In 22 cases vaccination was attempted at dates varying from the first to the fifteenth day of illness, with failure in 14 instances. The following are the dates at which vaccination was performed in the eight successful cases, two of which were of earlier date than Dr. Hibbert's: in two cases on the first day of initial symptoms; in two cases on the first day of papular eruption; in two cases on the second day of papular eruption; and in two cases on the first day of vesicular eruption. It was thus found possible to induce vaccinia as late as the first day of vesiculation—i.e., the third day of the eruption and the fifth of illness. Dr. Hibbert obtained vesicles in ten instances during the first four days of the eruption and papules on the fourteenth day in the eleventh case.

A point of interest is the previous condition as to vaccination of the patients. Dr. Hibbert records that three of his 11 cases were not primarily vaccinated, while in seven of my cases there was no history of vaccination, and the eighth had but one fair mark and was 47 years of age. The question as to whether vaccinia exerted any influence on the course of the attack in these cases naturally presents itself. Dr. Hibbert was unable to detect any modifying influence on the rash or on the course of the disease, and it may be noted that in two semi-confluent cases, vaccinated on the first and third days of the rash respectively, the vaccinia vesicles were very well-marked. Of my own cases, four were confluent in type, two were severe discrete cases, while two were mild in degree. The confluent cases were very severe, were all primarily unvaccinated, and one out of the four proved fatal. Of the discrete cases only one had been primarily vaccinated. My impression at the time was that a favourable therapeutic influence was exerted by vaccinia, but the number of cases recorded is so small that one would hesitate to lay any great stress on that view. Both Dr. Hibbert's series and my own would, however, appear to establish the possibility of successfully vaccinating during the vesicular stage of small-pox and possibly later. This is a point of some importance, in view of the strong tendency which Dr. Hibbert points out exists to regard such a result as a point in differential diagnosis against small-pox.

Public Health Department, City of Westminster.

[1] THE LANCET, May 20th, 1905, p. 1337.

[2] "A Clinical Record of 220 Cases of Small-pox." 1895. (Vict. M.D. thesis.)

# Medical Societies.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on May 12th, Dr. J. Mortimer, the President, being in the chair.—Dr. R. V. Solly showed (for Mr. G. L. Thornton) the following microscopic specimens: (1) A Blood Film showing Malignant Malarial Parasites in the form of crescentic gametocytes free among the corpuscles; (2) a Blood Film showing many Flagella of these parasites free among the corpuscles; (3) a Film Preparation of the Bacillus Pestis from Agar Culture, showing well-marked polar staining; (4) a Section of a Lymphatic Gland showing the Bacillus Pestis; and (5) a Film Preparation showing the Comma Bacillus, or Spirillum Choleræ. Many involution forms were present.—Dr. Solly then gave a lantern demonstration illustrating, in the first place, the life-history of culeces and anopheletes and also the features by means of which the two genera may be distinguished in the egg, larva, pupa, and imago stages. A series of slides were then shown illustrating the sexual stage in the mosquito and the asexual stage in human blood, of the three species of malarial parasites, benign tertian, malignant tertian, and quartan. Slides were exhibited demonstrating the peculiarities of the tsetse flies, glossina morsitans, which conveys nagana, and glossina palpalis, which conveys human trypanosomiasis or sleeping sickness; also the trypanosomes of these diseases and other varieties of trypanosomes, including the trypanosoma Tremanii found in the stone owl (athene noctua) and the wonderful transformations which it underwent in the stomach and the intestines of the common gnat, culex pipiens, as discovered by Professor Schaudinn. These changes showed a great resemblance to the sexual cycle of the malarial parasite in the stomach of anopheles. The

subjects of the Leishman-Donovan bodies, the Congo floor maggot, and the jigger were also touched upon and illustrated.—Mr. J. D. Harris and the President made remarks on Dr. Solly's demonstration and the proceedings terminated.

KIDDERMINSTER MEDICAL SOCIETY.—A meeting of this society was held on May 26th, Mr. C. D. Fitch, the President, being in the chair.—Mr. J. Lionel Stretton showed two girls from whom he had removed large masses of Tuberculous Glands in the Neck. The first patient was 17 years of age and the glands which were removed weighed one and a quarter pounds. The second patient was 19 years of age. There was a large mass in the neck and at its centre a small scar where an attempt had been made to remove it six weeks previously in America. The growth was found to involve the right sterno-mastoid muscle and it was necessary to remove the whole of this, together with the jugular vein, through one incision along the anterior border of the muscle. The mass consisted of chronic inflammatory granulation tissue, containing many quite typical miliary tubercles. There was practically nothing to be seen of the nature of lymphatic gland, but at one place the process had invaded striated muscle. Mr. Stretton said that the case proved the implication of the muscle, which he had several times before been obliged to remove whole or in part. This experience, however, appeared to be at variance with that of some surgeons.—Mr. Stretton also showed a female child, aged three years, whose Wrist he had Excised for Tuberculous Disease. The whole of the carpus and metacarpus, together with the ends of the radius and ulna, were removed. The wound healed by primary union and there was a fair range of movement.—Dr. O. C. P. Evans showed a man, aged 48 years, the greater part of whose Right Elbow-joint he had Removed nine years previously for an Injury to the Joint. The ends of the radius and ulna had been taken away, the end of the humerus being left. The man had a very useful arm and could carry on his work as a farm labourer.—Dr. Evans also read notes of a case of a woman, aged 36 years, upon whom he had performed Cæsarean Section and Hysterectomy. The operation was necessitated by a rupture in the posterior aspect of the uterus complicating a hand presentation. The woman had previously had nine normal labours.—Mr. Dykes showed a case of Convulsive Tic and also read notes of a case of Aneurysm of the Innominate Artery which was being treated by needling and had diminished in size.

OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.—A meeting of this society was held on June 3rd at Manchester in the Pathological Theatre of the Medical Department of the Victoria University, Dr. Thomas Barr, of Glasgow, the President, being in the chair.—Cases and specimens were shown by Mr. Pinder, Mr. H. E. Jones, Mr. F. H. Westmacott, Mr. L. Sewell, Dr. A. K. Gordon, and Dr. W. Milligan; and papers were contributed by Dr. P. McBride, Dr. J. Dundas Grant, Dr. Gordon, Dr. J. S. Barr, Mr. Westmacott, Mr. A. Wilson, Dr. J. D. Lickley, and Mr. Sewell. The most important items upon the programme were, however, a lecture by Professor W. Stirling upon Otocysts and the Ampullary Apparatus and a paper by Professor A. H. Young and Dr. Milligan on the Continuity of the Several Cavities of the Middle Ear.

# Reviews and Notices of Books.

*The Principles and Practice of Medical Jurisprudence.* By the late ALFRED SWAINE TAYLOR, M.D., F.R.C.P., F.R.S. Fifth edition. Edited, revised, and brought up to date by FREDERICK J. SMITH, M.A., M.D. Oxon., F.R.C.P. Lond., F.R.C.S. Eng., Lecturer on Medical Jurisprudence at the London Hospital; Medical Referee to the Home Office. In two volumes. London: J. & A. Churchill. 1905. Vol. I., pp. 975; Vol. II., pp. 924. Price 36s.

THE first edition of this well-known work appeared in 1865. Its publication was due to the author's belief that a comprehensive treatise would be welcomed not only by medical practitioners but also by members of the legal profession and others specially interested in the subject. That this belief was justified was demonstrated by the fact that an edition was exhausted about every ten years. The fourth edition was edited by Dr. (now Sir) T. Stevenson. The present edition has been revised by Dr. F. J. Smith and a perusal of its pages well shows the admirable manner in which he has carried out a difficult and heavy task. The last 10 or 20 years have witnessed such unparalleled activity in all branches of the sciences ancillary to medicine in general and medical jurisprudence in particular that Dr. Smith has naturally had to make considerable alterations in the new edition. He has, in fact, found it necessary to rewrite almost entirely some articles and to recast the whole plan of the work in order to bring it into line with the results of modern research.

There is much interesting matter to be found in "Section I., Introduction." The manner in which coroners' inquests should be conducted is a subject which is being energetically discussed. The opinion expressed in this work is that the inquiry afford no certainty for the detection of crime, that it affords no protection to those who are wrongly charged with crime, and that in some cases it screens a criminal by a verdict based upon an imperfect inquiry in which the important medical facts are either not understood or are misinterpreted by the jury.

The main defects in the present system of holding inquests are considered to be: (1) in a large proportion of cases there is no post-mortem examination of the body by a qualified medical man; (2) in a small proportion even of those necropsies which are made the cause of violent death may be overlooked through the want of familiarity of the inspector with the signs of a violent death or with the steps necessary to be taken in a medico-legal inquiry; (3) the verdicts of coroners' juries are not infrequently ridiculous and quite contrary to the medical evidence; and (4) it is by no means unknown for a coroner to call no medical evidence whatever.

The remarks on Evidence are admirable and we can strongly recommend a perusal of them to all practitioners, for medical evidence is often very difficult to give in a thoroughly satisfactory manner. The section on Medico-legal Responsibility in the examination of a person, alive or dead, is also a most interesting one. The importance of obtaining the consent of an individual before he or she is examined cannot be too strongly insisted on and numerous instances are cited in which the neglect of this precaution led the medical witness into serious difficulties. The subject of identity, both of the living and of the dead, is ably dealt with. The completeness with which the matter is considered is shown by the fact that its discussion occupies 130 pages. A large number of cases are quoted illustrating the numerous difficulties which may arise.

In the first volume many other matters are described in the same complete and explicit manner. Amongst these may be mentioned the signs of death, survivorship, wounds and personal injuries, death connected with extremes of temperature, starvation, and death occurring from various forms of asphyxia. Sections will also be found on suicide in general, lunacy in general, lunacy in relation to the law, and also on life insurance.

The second volume contains sections on various medico-legal points connected with the reproductive organs and on toxicology. Some of the most difficult cases with which medical witnesses have to cope are those concerned with pregnancy, rape, abortion, and infanticide, and occasionally skilled evidence is required in cases of divorce, legitimacy, and paternity. It seems scarcely necessary for us to remind practitioners how important it is to acquaint themselves most thoroughly with every aspect of the subject in which they have to give evidence. Counsel on either side will have done so and although the witness may travel with perfect security over the thick ice of his examination in chief, yet the

floating ice of cross-examination may present many dangers unless he is fully prepared beforehand with the knowledge acquired by careful examination and study. In the volume now before us the fullest details are given as to the numerous points that may arise and we can speak in high terms of the manner in which these important subjects are dealt with.

The portion of the volume dealing with toxicology is also characterised by the clear and thorough way with which each detail is considered. Each individual "poison" is described in a systematic manner under the following headings: source and method of occurrence, toxicity and fatal dose, duration, symptoms, treatment, post-mortem appearances, and analysis. A large number of poisonous substances are thus dealt with and this portion of the work is in every way most praiseworthy. The volume concludes with a chapter on Medical Jurisprudence in India by Dr. W. J. Buchanan, in which attention is drawn to those aspects of medical jurisprudence which are likely more especially to interest practitioners of medicine in India and other parts of the East under British rule.

In conclusion we may mention a special feature of these volumes—namely, the perfect mine of illustrative cases which they contain. Dr. Taylor's cases were chosen with much skill and his remarks on them were so judicious that in many instances Dr. Smith has left the descriptions intact. For his own part he has brought the work well up to date, some of the most recent judgments (one as recent as Nov. 9th, 1904) having been introduced. These cases are of the greatest value and the comments on them add considerably to their interest. We congratulate Dr. Smith on the successful result of his labours and consider that Taylor's "Principles and Practice of Medical Jurisprudence" as now edited is one of the best treatises on this subject in the English language.

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*A Text-book of Insanity.* By Dr. R. VON KRAFFT-EBING. Authorised Translation from the last German Edition by CHARLES GILBERT CHADDOCK, M.D. Philadelphia: F. A. Davis Company. 1905. Pp. xvi.–638. Price, extra cloth, $4.00 net; half russia, $5.00 net.

THE late Professor von Krafft-Ebing's comprehensive work on Psychiatry, based upon 33 years of observation of the insane, is introduced to the English-reading medical world in the present translation. It is divided into three books, dealing respectively with the introduction to the study of psychiatry and general and special pathology and therapy. These books are composed of parts and chapters and the latter again of divisions and subdivisions, which system of exposition, whilst theoretically good, is likely to bewilder by its complexity. Instances of this could be given did space allow but we must content ourselves by referring to Part iii. of Book III. as an example. Throughout the work this tendency to divide and to subdivide is noticeable in what often appears to be an artificial and arbitrary manner.

Book I. gives a good historical review of the development of psychological medicine as a science. Dealing with the place of mental disease in the general domain of cerebral disease the author reminds us that the conception of psychoses as functional diseases may be given too wide an application and thus may encourage neglect of investigation of the pathologico-anatomical foundation of disease. We would add neglect also of bacteriological and chemical investigation, research in this relation being urgently needed. The author thinks it may be said "that there is not a single diffuse alteration of the cortex of the cerebrum, be it hyperæmia, anæmia, œdema, or inflammation, which does not manifest itself clinically by a disturbance of the psychic functions." We do not know that there is any evidence for this view in respect to the three first-named alterations; we are not, in the first place, able to admit that such alterations can be diagnosed.

Book II. deals primarily with disturbances of sensation, feeling, intellect, and will, of consciousness and of the motor, vaso-motor, trophic, and secretory functions in insanity. These matters are fully discussed; the author feels himself justified in giving definite teaching on what some would judge to be hypothetical matters. Here, also, he considers the causation of insanity, with its course, termination, prognosis, and diagnosis in general, together with general treatment. On these topics the usual lines are followed; all are thoroughly dealt with. We may refer more especially to the chapter on prognosis; the remarks on diagnosis also are very good. An outline for the examination of the mental state is given; we are pleased to observe that the author in his scheme includes the signs of degeneration, which he goes into rather fully, thereby emphasising his appreciation of the necessity for anthropometrical examination, which, we are glad to admit, is recognised in some asylum schemes in this country, although the general tendency is still to regard such work as superfluous and in the nature of a fad. Under treatment are discussed "means to prevent the fluxion of blood to the brain" (bleeding, diminishing the activity of the heart, dilating the peripheral vessels, and so on) and "means of increasing the flow of blood to the brain" (dilating the blood-vessels, facilitating the flow of blood to the brain, and the like). It may be doubted whether much of value can be achieved by such means. "Psychic" treatment is duly considered. As regards hypnotic suggestion, it is shown that this cannot be expected to succeed in insanity. We believe that the method has been discarded.

Book III., which comprises the greater part of the work, deals with the special pathology and therapy of insanity. The basis of classification of mental diseases of the adult brain assigns the latter to two classes according as they are accompanied by constant pathological lesions (organic psychoses) or not (functional psychoses). The former class comprises such states as acute delirium and dementia paralytica, and the latter mania, melancholia, and so on ("disease states of the normal robust brain") and paranoia, periodic insanities, and the like ("disease states of the abnormal predisposed brain"). The intoxication psychoses are a transitional group between the two classes. In this scheme holes may be picked as in all similar attempts, but we think that a classification on pathological lines is to be approved, even though it cannot as yet be elaborated for lack of knowledge. The disorders now commonly described under dementia præcox are discussed under the heading "stupidity or primary curable dementia," which condition is contrasted with melancholia cum stupore in the orthodox way familiar to students in the "eighties." The author considers it questionable whether hebephrenia can justifiably be regarded as a peculiar form of disease. We agree with him and apply the same criticism to the term "katatonia." The student, in our opinion, loses nothing by the absence of the usual chapter on this and other forms of "dementia præcox," which is at present *de rigueur* in the orthodox text-book. The different kinds of insanity are thoroughly described. A good account is given of the neuropathic condition and its manifestations. The author describes "hysteric psychoses" but we find the exposition of these states far from clear or convincing. We think it may fairly be said of this work that the style is often laboured and verbose. On p. 576 is the statement that dementia paralytica "may develop out of cerebral neurasthenia if the blood-vessels are abnormally permeable." Similar extraordinary statements are made with confidence in the course of this work. In fact, we do not think that pathology is a strong feature of the book which is rather that of a clinician. The various types of disease are copiously illustrated by cases from the author's large experience.

This is an elaborate work, suitable more particularly for the alienist and advanced student. Dr. F. Peterson of New

York introduces it with a biographical sketch of Professor Krafft-Ebing which is an interesting account of the life-work of the brilliant alienist of Gratz and Vienna.

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*Life Insurance Examinations: A Manual for the Medical Examiner and for all Interested in Life Insurance.* By BRANDRETH SYMONDS, A.M., M.D. New York and London: G. P. Putnam's Sons. 1905. Pp. 214. Price 4*s.* net.

IN preparing this concise manual the author has been influenced by the desire to set forth the duties and the obligations of a medical examiner for life insurance. As a medical director of one of the American companies and as a lecturer on life insurance examinations he approaches his task with ample experience of the requirements from the official standpoint. That this book is addressed to the younger generation is evident in the prefatory pages, since the author discusses whether the course of instruction at a first-class medical school will enable a man to examine healthy people, and he holds that the condition of average health presents a problem for which he is not prepared; that an alert young practitioner hunts for some pin-hole defect which he magnifies through excess of zeal; and that an applicant for life insurance minimises his symptoms and diseases and has little or no sense of commercial honour when dealing with an impersonal thing like a corporation. These things a well-equipped practitioner might be expected to anticipate though the author thinks it is not reasonable to suppose that a man can have such knowledge intuitively. There is much of general interest in the historical account of life insurance and the section on fundamental points supplies important data relating to expectation, selection, insurance companies, and insurance policies. Much time and trouble would be saved if all medical examiners would act upon the directions laid down in the section on the relations between the examiner and the company; these are explicit and sensible and apply equally to all companies and all forms of life insurance. Although the author advocates a golden mean between antagonism and sympathy with regard to agents his remarks seem unduly charitable, since the weak point of all insurance companies is that the interest of the agents cannot coincide with that of the office. The chemical examination of the urine and the significance of cardiac murmurs are briefly discussed but the conclusion is that all deviations from the normal should be fully described for the information of the company with which rests the interpretation of the facts.

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*The Principles of Chemistry.* By D. MENDELÉEFF. Third English edition, translated from the Russian (seventh edition) by GEORGE KAMENSKY, A.R.S.M., of the Imperial Mint, St. Petersburg, and edited by THOMAS H. POPE, B.Sc., F.I.C. In two volumes. London: Longmans, Green, and Co. 1905. Pp. 1190. Price 32*s.*

OUR last marked reference to the great Russian chemist and his work was made in a leading article in THE LANCET of Feb. 27th, 1904, p. 591, in connexion with his views on the nature of the ether. Chemists are inclined to regard Professor Mendeléeff's chemical conception of the ether as speculative, but we are bound to remember that he has during his remarkable career made not a few speculations which have turned out to be, after all, an intelligent prediction of facts. Therefore we listen to what he has to say with respect. At any rate, no one could fairly convict him as a man of narrow views. On the contrary, his writings show the liberal spirit of the true philosopher. His views on the chemical nature of the ether are added in the form of an appendix to the volume before us. Advancing age seems to have impressed upon him the advisability of committing to print the ideas passing in his mind upon the constitution of matter and a great inducement to make these views known occurred when the phenomenon of radio-activity was announced. Shortly, his view is that the ether is an element lighter than hydrogen and that radio-activity really amounts to the emission of a peculiar rarefied ether gas capable of exciting the luminous vibrations. He anticipates adverse criticism but to some extent meets it by giving as his reason for making known his views that he has not many years for delay. "When I applied," he writes, "the periodic law to the analogues of boron, aluminium, and silicon I was 33 years younger than now and I was perfectly confident that sooner or later my prediction would be fulfilled. Now I see less clearly and my confidence is not so great. Then I risked nothing, now I do. This requires some courage, which I acquired when I saw the phenomena of radio-activity. I then saw that I must not delay, that perhaps my imperfect thoughts might lead someone to a surer path than that which was opened to my enfeebled vision." Here speaks the true philosopher and here is once more but another instance of a great master, old in years, confessing, as his great prototype Newton did before him, that in spite of the vast number of added facts and phenomena brought to his notice the *vera causa* seems as far off as ever. The volumes stand unrivalled in their clear and simple account of the principles of chemistry. But the work is not confined to the mere consideration of principles, for they constitute, as a matter of fact, an excellent source of reference for experimental data. Professor Mendeléeff has never failed to marshal just those facts to his aid which formed links in the chain of evidence. The number of chemical substances for which he has found a place in the index is remarkable; in fact, in a sense the work will be found to serve the purpose of a dictionary of chemistry so thoroughly and comprehensively has the author treated his subject. The present edition is practically identical with the previous one except that his chemical conception of the ether forms an article in the appendix, the corresponding place being occupied in previous editions by an article that has now been incorporated in the text of the book. The work is a classical contribution and both author and translator have acquitted themselves admirably. Moreover, the present issue has enjoyed the advantage of being edited by Mr. Thomas H. Pope.

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*The Edinburgh Stereoscopic Atlas of Anatomy.* Section I. Contents 50 plates: Thorax, 1–15; Lungs, 1–3; Heart and Pericardium, 1–12; Mediastina, 1–6; and Central Nervous System, 1–14. The work to be issued in five sections each containing 50 subjects with descriptive text. Edited by DAVID WATERSTON, M.A., M.D. Edin., F.R.C.S. Edin., F.R.S. Edin., Lecturer and Senior Demonstrator in the Department of Anatomy, University of Edinburgh. London and Edinburgh: T. C. and E. Jack. 1905. Price, complete, £6 5*s.* net.

WE have examined with great interest the first section of this atlas and have already referred at sufficient length in these columns to the circumstances and auspices under which it is being produced. The series of 50 views now issued comprises illustrations of the thorax and the central nervous system and is subdivided into sections devoted to the thoracic walls, the heart and the pericardium, the lungs, the mediastina, and the brain. Fifteen reproductions of photographs are given of the thoracic walls, the pleuræ, and the pericardium; amongst these are special views illustrating the topographical anatomy of the heart and its valves. It is interesting to learn that these have been taken by a method of double exposure, first with the sternum and the costal cartilages in position and then after their removal. The results are very striking, the viscus being seen as through a semi-transparent covering and its relations to ribs and intercostal spaces are well depicted. A careful examination of the photographs of the heart thus taken and reproduced in this series shows that its relations vary somewhat

from those ordinarily accepted as correct. The relations of the lungs and the pleural sacs, of the pericardium and of the structures in the upper aperture of the thorax, are all well shown. Only three photographs of the lungs are reproduced; these views are taken from above and in front and from the mediastinal aspects. It seems a pity that it was not found possible to illustrate the surface relations of the posterior parts of these organs. The views of the heart and the pericardium leave but little to be desired and convey a good idea of the shapes, the relations, and the connexions of the various cavities. The arrangements of the valves and the positions of the thin portions of the septa are well brought out. Some of the views of the mediastina appear to be rather complicated and it is not always possible to trace the pins which carry the guiding labels to their exact destinations in the depth of the pictures. In view No. 2 of the mediastina the vagus nerve appears to be indicated as the left superior intercostal vein and several of the labels are quite illegible. In No. 3 the right subclavian and the right *external* jugular veins are said to unite to form the innominate, an obvious slip. A beautiful series of photographs of the brain is given and these cannot fail to be of great use. They include views of the surface, of the ventricles, and of sections. We doubt, however, the wisdom of including a picture of the hydrocephalic brain; it seems rather out of place in an anatomical series. The stereoscopic effect of the pictures is excellent and they have evidently been most carefully prepared. The cards might have been issued in a stronger case with advantage as they are of considerable weight.

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*The Investigation of Mine Air.* Edited by Sir CLEMENT LE NEVE FOSTER, D.Sc., F.R.S., and J. S. HALDANE, M.D. Edin., F.R.S. London: Charles Griffin and Co., Limited. 1905. Pp. 191. Price 6*s*.

THIS is a contribution of the greatest importance in connexion with the study of the constituents of mine air. In reality it is a collection of papers written by several authors on the nature, significance, and practical methods of measurement of the impurities met with in the air of collieries and metalliferous mines. Dr. Haldane, whose excellent work and inquiries on the subject are well known, has contributed a section dealing with rapid methods of analysis which have not been hitherto published. From time to time Dr. Haldane has made some valuable observations on the subject in official reports to the Government and we welcome in this collected form the information which he has gained by experience. He has designed methods of analysis in its special application to the examination of mine air, he has studied the question of the significance of the results, and he has given an excellent account of the effects of the impurities on man. His contribution in the present book on the interpretation of the analysis of mine air is most valuable.

The account given by the late Sir Clement Le Neve Foster on the effects of carbonic oxide in connexion with the Snaefell mine disaster in 1897 affords most interesting reading. His long confinement in the poisonous atmosphere was probably the starting-point of the illness which ultimately proved fatal. His devotion to duty was remarkable. He was intensely practical and was held in the greatest esteem by his co-workers and by those in whose life interests he laboured. It is doubtful whether a more graphic account has been written concerning the sensations, symptoms, and after-effects of poisoning by carbon monoxide. His coolness under the prospect of being left to die under the insidious action of carbon monoxide claims admiration. "How soon," he wrote, "I realised that we were in what is commonly called a 'tight place' I cannot say but eventually, from long force of habit, I presume, I took out my notebook. At what o'clock I first began to write I do not know, for the few words written on the first page have no hour put to them. They were simply a few words of good-bye to my family badly scribbled." Later he made a note of the time and at two o'clock he wrote: "Good-bye, we are all dying, your Clement; I fear we are dying, good-bye all my darlings all, no help coming, good-bye, we are dying, good-bye, good-bye, we are dying, no help coming, good-bye, good-bye." A few minutes later he wrote, "The box does not come. ..... I feel as if I was dreaming, no real pain, good-bye, good-bye. ..... We are all done." At length rescue was effected and the account of the stages of gradual recovery is of great interest. The anæsthetic action of carbon monoxide was evident from the fact that Sir Clement Foster experienced numbness of the fingers and he had, in fact, burnt his wrist and hand in a candle flame and had no notion that he had done so until a friend in the evening called his attention to a big blister. This was five hours or more after the burn.

Monsieur Léon Poussigue, manager of some French collieries, contributes an account of the methods there employed for the systematic examination of the air and control of the ventilation. The method of estimation of fire damp which is described should be studied by English mining engineers, as apparently it is as yet little known in this country. The first section is a translation of the treatise on the analysis of mine air by Professor Otto Brunck of the Royal Saxon Mining College, Freiburg. The instructions given are in simple terms and should be a valuable guide to mining engineers.

This book should be in the hands of all those concerned in the control of mining operations, for it is well calculated to fulfil the noble purpose of saving human life and preventing suffering.

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## LIBRARY TABLE.

*The Arris and Gale Lectures on the Neurology of Vision.* By J. HERBERT PARSONS, B.S., D.Sc. Lond., F.R.C.S. Eng. With two plates and 22 figures. London: Hodder and Stoughton. 1904. Pp. 70. Price 2*s*. 6*d*. net.—The title hardly fits the limited scope of the two lectures which make up this brochure. Lecture I. deals with the Afferent Visual Paths. Besides giving a *résumé* of the results already obtained the author adds some experiments of his own. It seems evident that of the two branches into which the optic tract divides as it turns round the cerebral peduncle the lateral root contains the visual fibres and ends in the lateral geniculate ganglion, while the mesial branch joins the mesial geniculate body and consists of fibres not connected with vision. The white line of Gennari, or Vicq d'Azyr, or of Baillarger in the cortex cerebri in the neighbourhood of the calcarine fissure has been known since the early part of the last century and this visuosensory cortex has recently been exhaustively investigated by Bolton. These white fibres represent the terminations of the optic fibres. Lesions of the occipital lobe produce hemianopia without affecting the pupil reflexes. The fovea almost invariably escapes. Lesions of the mesial surface near the calcarine fissure produce the most serious disturbance for their size. The second lecture deals with the Innervation of the Pupil. There is a full historical introduction. The existence of a dilator muscle in the iris is admitted and the anterior layer of the retinal pigment epithelium is regarded as acting as a dilator muscle. Evidence by Szili goes to show that the sphincter pupillæ is also derived from the retinal epiblast. "These muscles, therefore, would resemble the arrectores pilorum of the skin in being formed from the epiblast." "Budge (1851–55) first seriously attacked the problem of the innervation of the pupil and it is only within the last few years that anything of importance has

been added to his results, though they have been corrected in detail." This lecture gives these advances and corrections and anyone interested will do well to peruse this brochure. An excellent bibliography is appended. The author records his own observations on the effects produced on the pupil by stimulation of the cortex cerebri.

*Hay Fever.* By WALTER HERRIES POLLOCK and GUY C. POLLOCK. London, New York, and Bombay: Longmans, Green, and Co. 1905. Pp. 222. Price 3*s.* 6*d.*—Let no one be deceived by the medical title. This is not a serious contribution to science, in spite of its inclusion in the list of new books on science in the *Athenæum*. It is a very entertaining story-book where farcical episodes result from two causes connected with medicine. A copy of a prescription is given by a layman to a sufferer from hay fever and the directions on the bottle are obliterated by a splotch of sealing-wax. Many overdoses are taken and as the drug is cannabis indica the results afford material for amusement. The sufferer is a stockbroker and some excellent fun is obtained from the irresponsibility of his actions while under the influence of the drug. The lively note is well sustained throughout and, though temporary relief from hay fever is produced by cannabis indica, the book ends, as it starts, with a hearty sneeze. The moral is, Avoid untrained prescribers and shun overdoses.

*Les Rayons de Roentgen; Appareils de Production; Modes d'Utilisation; Applications Chirurgicales.* Par EDMOND LOISON, Médecin-Major de 1re Classe, Professeur Agrégé du Val-de-Grâce. 1 volume in-8vo de 680 pages, avec 1191 figures dans le texte. Paris: Octave Doin, Editeur. 1905. Price 10 francs.—This work is divided into three parts, physical, technical, and surgical. The first or physical part contains a description of the various electrical appliances which are utilised in the production of the radiations discovered by Roentgen. Space is not occupied with the elementary subjects which every medical man is either acquainted with already or can find in his books, but, on the other hand, very full information, theoretical and practical, is afforded from a radiological point of view regarding the more advanced branches of electrical production. The second or technical part, which is subdivided into five sections, is concerned with the choice and management of the different appliances under various conditions, including military operations, and in addition to radiography in general deals as well with chrono-radiography, endo-radiography, stereoradiography, and metroradiography. In the final section of this part the author treats of radiotherapy, including *a résumé* of what is at present known about the deleterious effects exercised by the rays. In the third or surgical part Surgeon-Major Loison depends upon his own personal observation. He has produced a most valuable contribution to the literature of a new subject.

*L'Abus des Lavages d'Intestin.* By Dr. CHARLES ESMONET of Châtel Guyon. Reprinted from the *Archives Générales de Médecine*. April, 1905. Paris: Guérin, Derenne, LLuis, et Cie.—In this little pamphlet Dr. Esmonet draws attention to the "detestable tendency" which patients exhibit to administer intestinal injections to themselves in spite of all the directions which their medical men may give them against the abuse of such injections. He quotes the case of a young woman who had suffered from muco-membranous colitis for six years. During the last four years she was in the habit, twice a day, of washing out her colon with an injection of two litres of fluid. She suffered from acute spasm of the colon and never had a natural motion. The injections were stopped and belladonna was prescribed when she rapidly recovered. Dr. Esmonet concludes by pointing out that intestinal injections have their uses but that when once the large intestine has been thoroughly evacuated the injections should be stopped.

# New Inventions.

## AN ELEVATING VAGINAL DIRECTOR.

IN a small number of gynæcological laparotomies drainage of the pelvis is of advantage. It is well to drain at its most dependent part—i.e., from the bottom of Douglas's pouch directly into the vagina—and in the experience of the writer the most efficient agents are the glass vaginal drainage tubes introduced by Sir William Sinclair. The creation of a communication between Douglas's pouch and the vagina, whether carried out from above or from below, may be a source of delay and sometimes of difficulty. It implies interruption of the operation, fouling of one or both of the operator's hands necessitating re-sterilisation or change of gloves, and, if performed from below, alteration of the position of the patient. The instrument figured abolishes these disadvantages. For want of a better name it has been termed an "elevating vaginal director." It consists of a handle with a rigid shank on the end of which is fitted a flattened tube which has a transverse measurement of one and a quarter inches. The edges of the tube are thickened to prevent infliction of injury. The assistant introduces the instrument into the vagina and guides its upper end into the posterior fornix. By depressing the handle the upper end of the posterior vaginal wall is lifted up carrying before it the peritoneum. Through these structures the operator can readily feel the margins of the flattened tube and in some cases can see their outlines. The operator should make

certain that no bowel is adherent to the bottom of Douglas's pouch, and should carefully ascertain that the orientation of the instrument is correct. Palpation with the fingers at once shows whether the cervix lies, as it should, immediately in front of the flattened tube. The vaginal wall stretched across the latter is then incised with knife or scissors, the points of the cutting instrument being prevented by the tube from damaging any other structures. Before the withdrawal of the director the cut edges of the vaginal wall are examined for bleeding points. Subsequently the assistant guides a Sinclair's tube along the vagina into position. Thus the operator's hands remain at all times clean and unsoiled and the course of the operation is uninterrupted. In ordinary circumstances the vaginal wall can be lifted up to the level of the abdominal wound. When inflammatory processes have more or less fixed the pelvic tissues the range of elevation is less but is quite sufficient to permit of the communication being made with an ease which contrasts strikingly with former methods.

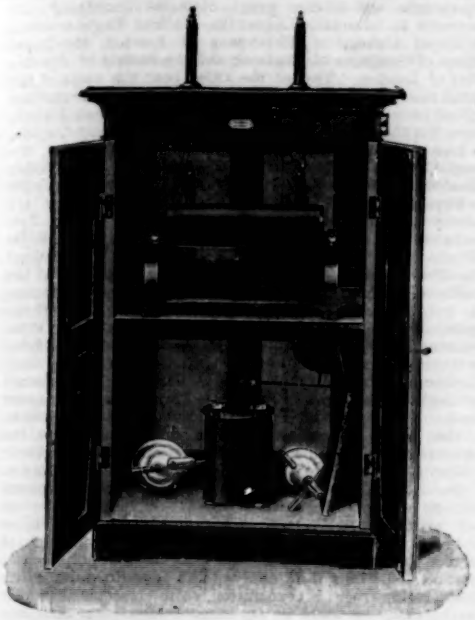
Messrs. White and Wright, Renshaw-street, Liverpool, have devoted much pains to the making of the director.

Liverpool. ARTHUR J. WALLACE, M.D. Edin.

## A NEW HIGH TENSION TRANSFORMER AND A NEW FORM OF RADIUM APPLICATOR.

Messrs. W. Watson and Sons, of 313, High Holborn, London, W.C., are showing a new high-tension transformer for producing the x rays and high frequency currents, without induction coil or primary interrupter. It is made to work directly from the alternating current main. Where the supply is continuous a converter is provided to change it to alternating. The current is first led to a switchboard which is provided with the necessary measuring instruments and from which the whole apparatus is controlled. From this the wires go to the wooden cabinet which contains the transformer and the valve cell. This latter constitutes one of the chief features of the apparatus. It consists of a somewhat modified Nodon valve and is placed in series with the primary winding of the transformer. Its action is to suppress the impulses in one

direction with the result that the primary winding of the transformer is supplied with a current which is more or less unidirectional. This valve will work for long periods of time without any attention. The secondary high tension current



is thus also more or less unidirectional and can be used without further treatment for x ray work provided that a special bi-cathodal tube is employed. For ordinary x ray tubes a valve tube is provided which completes the rectification of the current. This valve tube is of peculiar design and will work for a long time without altering its vacuum to any material extent. The illumination of the x ray tube is very steady and the intensity of the light is under perfect control. The whole operation takes place in almost perfect silence, so quiet is the working of the apparatus. For high frequency currents the valve cell is cut out and the high tension alternating current is led directly to the high frequency apparatus which may be any of the types in ordinary use. The instrument is a distinct advance on the usual induction coil and interrupter.

The same firm are showing a new form of radium applicator made after the suggestion of Mr. T. J. P. Hartigan. It consists essentially of a thin quartz cover which permits a more full effect being obtained from the radium. The latter is hermetically sealed into the quartz by means of a silver back piece which may be attached to various carriers for application to the œsophagus, larynx, bladder, &c., the size of the applicator being practically that of a No. 12 catheter. It is also fitted with a metal cap somewhat after the style of a compass cover and the cap has a small slot cut on one side which will permit of the emanations being confined to any particular area.

## A METHOD OF MOUNTING SECTIONS OF ORGANS FOR MUSEUMS.

A METHOD has been devised by Mr. F. F. Leighton of Bristol for exhibiting the cut section of an organ in such a way as to avoid the distortion due to spherical vessels or the difficulty of close examination when flat-sided vessels are employed. It is easy of execution and may prove of use to curators of museums. Thin slices of organs, prepared by one of the colour-preserving methods, are cut and mounted in shallow cells formed by cementing strips of plate glass, half an inch wide and one-fifth of an inch thick, to the edges of a flat glass plate. Old photographic plates which have been cleaned serve the purpose well. Canada balsam heated till it will set hard on cooling is used as the cement. After placing the section in the cell so formed a second plate is cemented over it. One of the strips forming the sides of the cell is cut short so as to leave an opening by means of which melted glycerine jelly can be poured into the cell and the section thus imbedded in the jelly.

## BRANDY STERULES.

KNOWING how seldom it is that one can obtain a pure grape brandy when called to a case Mr. Martindale, chemist, of New Cavendish-street, London, W., has, at my suggestion, put up, in the form of his well-known "sterules," a brandy made from the grape. One or two of these brandy "sterules" can easily be carried in a small case as they take up very little space. It is only necessary to break off the top of the glass when one requires to utilise the contents.

STUART HALLOWS, M.B. Edin.

## ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary meeting of the Council was held on June 2nd, Mr. JOHN TWEEDY, the President, being in the chair.

It was resolved that diplomas of Fellowship should be issued to 35 successful candidates and that Licences in Dental Surgery should be issued to 50 successful candidates.

A report from the board of examiners in dental surgery was received and adopted. The Council decided: (1) To recognise the licence in dental surgery of the Dental Board of Victoria, and (2) to admit the holders of such licence to the first and second professional examinations together without previous passing of the preliminary science examination. Similar privileges were accorded to the holders of the degrees or licences in dental surgery recognised by the College, provided that they produce evidence (*a*) of having passed a satisfactory preliminary examination in general education; (*b*) of having completed the necessary curriculum of professional study; and (*c*) of having passed the required professional examinations for their degree or licence in dental surgery. It was also decided to exempt from the whole of Part I. of the second professional examination all candidates who shall produce evidence of having passed the examination in surgery for a degree or other qualification in medicine or surgery registrable under the Medical Act of 1886.

The Council proceeded to the election of the examiners for the Membership and Fellowship and Diploma in Public Health for the ensuing year. In every case the examiners already acting were re-elected.

The PRESIDENT reported that it had been arranged that the reception in the museum to the members and visitors of the Atlantic Union should be held on Wednesday, July 12th, from five to seven o'clock P.M.

A letter was read from Mr. Henry Morris reporting the proceedings of the General Medical Council at its late session.—The best thanks of the Council were given to Mr. Henry Morris for his services as the representative of the College in the General Medical Council.

A letter was read from Sir Alfred Cooper resigning his seat on the Council, as he contemplates retiring from practice in the near future.—The resignation was accepted with sincere regret.

The PRESIDENT reported that a meeting of the Fellows would be held on Thursday, July 6th next, for the election of four Fellows into the Council in the vacancies occasioned by the retirement in rotation of Sir Henry G. Howse, Mr. Edmund Owen, and Mr. Bickman J. Godlee, and by the resignation of Sir Alfred Cooper.

The Fellows' subscription dinner will be held in the College on the evening of election day.

# MEDICINE, ITS PRACTICE AND ITS PUBLIC RELATIONS.

## CHAPTER XV.[1]

THE PRESENT STATE OF MEDICAL EDUCATION—(*Continued*).

*The Practical Unanimity of the Medical Scheme.—The Small Anomalies.—The Title of Doctor.—The London Medical Student.—The Falling off at the London Medical Schools.—The University of London to the Rescue.—The Separation of the London Medical Schools from their Hospitals.—Sir Edward Fry's Commission.—The Centralisation of Science Teaching.*

IT has been seen that all medical education in England, through whatever portal the student intends to present himself for registration, is practically upon the same model, while the General Medical Council, in its intent to establish and to maintain a good and uniform standard, scrutinises the final tests of the corporations and societies from exactly the same point of view as is employed in scrutinising the universities. The result is that, roughly speaking, every medical student in the country receives the same education and is tried at the end of the same allotted period by the same tests. But this is to speak roughly indeed, as appears from the fact that the examinations of the Universities of London and Oxford have both recently fallen under the ban of the General Medical Council, although the last visitations have had such highly complimentary results, while at the same time the examination for the Licence of the Apothecaries' Hall of Dublin has been considered, after inspection, "sufficient," "sufficient" implying, of course, in the words of the Act, a standard which will "guarantee the possession of the knowledge and skill requisite for the efficient practice of medicine, surgery, and midwifery."

But no one seriously supposes that the men who have taken their places upon the roll of the medical profession after complying with the educational requirements of the Apothecaries' Hall of Dublin have ever been better equipped for that profession than are the *alumni* of Oxford or London. It is true that we have in all cases the inspector and visitor of the General Medical Council, presumably on the same instructions, applying the same tests, seeing that the same provisions for fair examination exist, that the same regard is being paid to certain outlying provinces of medicine and surgery, and so on, with the apparent result that at one time there was greater fault to be found with the processes by which the student obtained the important hall-mark of M.D. Lond. or M.D. Oxon. than with those by which he is enabled to write himself down L.A.H. Dub. There can, it is suggested, be but one explanation of the position. Surely and sensibly, though in contradiction to the spirit and purpose of the law of the land, the General Medical Council inspects and visits the examinations of the different bodies from different points of view. The suggestion must not be made too much of, but none the less it must be made and its significance noted in connexion with the arguments advanced for the "one-portal system," the much debated measure of reform under which all medical men would be compelled to enter their profession by the passing of one State examination.

The important questions involved in the institution of such a State examination will fall naturally for discussion in a later chapter but it is impossible not to see that in many ways our present scheme of medical education, though it is practically unanimous in design, and though it is regulated by a coördinating authority, presents an awkward number of anomalous features. For example, in the examination schedule of one university the subject of "physics" includes the subjects "light" and "sound" and does not do so at another; "zoology" at one place and "biology" in another appear to mean the same thing; the medical student at Oxford who has passed his first M.B. examination is in the same stage of his curriculum as his brother student at Cambridge who has passed his second M.B. examination. Consider again the awkwardness of the multitude of medical titles, leaving aside for the present moment the vexed and most important question of who has a right to the title of Doctor. In England there are three corporations which can grant diplomas qualifying the possessors to be enrolled upon the Medical Register—viz., the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Society of Apothecaries of London. Two of the titles bear the name of the capital and one the name of the country, but the limitations implied have no existence, so that apart from their historic reason the titles are silly and misleading. In Ireland, again, we have the Royal College of Physicians of Ireland, the Royal College of Surgeons in Ireland, and the Apothecaries' Hall of Dublin; in Scotland the Royal Colleges of Physicians and of Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow. This means that in Ireland the diplomates of the Royal Colleges are named after their country and in Scotland after their metropolitan city, as the Irish Licentiates of the Apothecaries' Hall are named, but, again, the limitations are only apparent. Everybody can practise everywhere. Again, in the Royal Colleges of Physicians of all three countries the Membership is an honour diploma qualifying for admission to the Fellowship, the ordinary diploma being a Licence. In the Royal College *of* Surgeons of Edinburgh and the Royal College of Surgeons *in* Ireland (why this queer change of preposition?) the ordinary diploma is a Licence. At the Royal College of Surgeons of England alone the Membership is the ordinary diploma and there is no Licentiate. A Member of the Royal College of Physicians of London is the holder, that is to say, of an honour diploma enabling him, if he have positive and negative virtues and advantageous opportunities, to become a Fellow of his College, but a Member of the Royal College of Surgeons of England holds the pass diploma of his corporation entitling him only to a certain microscopic consideration from his corporation, so microscopic that some members may be heard to say in cold blood that their connexion with their College is absolutely valueless to them. All these anomalies make it very difficult for the public to understand that, not only from a legal point of view but from a professional point of view all medical men enjoy the same status—that is to say, that they all owe their places upon the Medical Register to the successful negotiation of examinations supervised by the General Medical Council in accordance with the Medical Acts. Those Acts provide but one class of medical men—viz., properly equipped practitioners of whom an official list has to be kept which the public may consult and so avoid the wiles of quacks. The public, however, do not understand this and the legal profession appears to understand it every whit as little. In the *Daily Telegraph* dated March 6th, 1905, there appeared an account of a police-court case where a Licentiate of the Society of Apothecaries, giving evidence for the prosecution, was thus addressed by the solicitor for the defence: "Yours is the lowest degree a medical man can take." The legal gentleman, if correctly reported, was here rude and ignorant—rude because the words are not those which a member of a learned profession should address to a member of another learned profession; ignorant because there is no "highest" and "lowest" in the qualifications by which a man obtains the right to give medical evidence. If the exponents of the law are thus betrayed into vulgar error we can hardly blame the public for not understanding the legal position of medical men and for believing in the existence of some professional hierarchy.

But far more important to the medical profession than the smaller anomalies in style and title is the embarrassing fact that only those who graduate in medicine at one of the universities bear by academic right the style which is popularly granted to all medical men—viz., the title of Doctor. The diplomates of the Royal Colleges and the Licentiates of the Societies of Apothecaries are not able to style themselves "Dr.," though the public will not allow them to describe themselves otherwise. This is extremely galling for the diplomate, as the public cannot comprehend his not possessing the title by which they prefer to address their medical adviser. They are apt to regard him as an inferior man. Hence a never-ending subject of discussion among medical men and hence a position which must come within the scope of reform soon. "The man's the gowd for a' that" is more undoubtedly true about the practitioner in

[1] Chapters I., II., III., IV., V., VI., VII., VIII., IX., X., XI., XII., XIII., and XIV. were published in THE LANCET of Feb. 18th (p. 447) and 25th (p. 517), March 4th (p. 593), 18th (p. 736), and 25th (p. 817), April 1st (p. 877), 15th (p. 1017), 22nd (p. 1039), and 29th (p. 1151), May 6th (p. 1218), 13th (p. 1287), 20th (p. 1375), and 27th (p. 1449), and June 3rd (p. 1533), 1905, respectively.

medicine than about the member of any section of the community and many a man possessing only the pass title of his corporation enjoys a position every whit as good socially and scientifically as his colleague who is a medical graduate, but this does not alter the fact that the classification into "Dr.'s" and "Mr.'s" of the rank and file of the medical profession does a real injustice to a great number of men, especially to the London medical student whose peculiar position at the present moment must be considered in some detail.

Twenty-five years ago the average annual entry of medical students intending to take out their whole curriculum in one of the 12 London schools was little short of 700. It varied from 670 to 730, and to these there had to be added a fair number of students who, having done their preliminary work elsewhere, joined a London medical school to complete their course by "walking" a London hospital. During the "eighties" and "nineties" the common entry of general students at all the schools gradually dropped; now one school and now another appeared to suffer more than its fellows, but the story was one of regularly decreasing popularity of the London schools. Dr. J. Kingston Fowler, the dean of the medical faculty of the University of London, who has made the position of the London medical student his particular care, has recently given,[2] upon the authority of the several deans of the schools, 424 as the annual average number of medical students entering for the whole curriculum in London during the period 1900–04 and, having regard to the fact that figures so obtained would not constitute an understatement of fact, we should probably be safe in assuming that not more than 400 students are likely next October to enter for a complete course of medical education in London. The broad significance of the desertion of London by the medical student must not escape us. London is not only the capital of this country and this empire but it is a truly world's capital in a way and to an extent that Paris and New York are not. If, as would appear self-evident, medicine and surgery can only be learned where men and women are congregated together in sufficient density to display numerous types of disease, then it follows that London should possess the first medical school in the world. An unexampled wealth of material should be utilised by the finest processes of tuition, or the world is deprived of what it has a right to expect. When a medical student turns his back for choice upon London and seeks his education elsewhere, when the famous hospitals of the metropolis do not attract him, when to reside at the world's headquarters appears to him to offer no rewards commensurate with its drawbacks, a serious position is implied. By so much as the work done in the wards and out-patient departments of the London hospitals is not utilised for educational purposes, by so much is our country placed at a disadvantage compared to others—we are wasting scientific opportunities. The world is the poorer and Great Britain is especially the poorer. The advantages of living in London and the field that is offered by London for the observation of disease cannot have escaped the attention of the student or his parents. A huge seaport, the seat of a court and a Government, a teeming industrial centre finding employment for tens of thousands of operatives, a fashion and pleasure capital, a focus around which 20 residential cities are more or less loosely grouped, and the money exchange of civilisation,—that is London, and such a city, or rather such a congeries of cities, must have within its ill-defined ramparts examples of all sorts and conditions of physical ill. Before the student of disease would turn his back upon the opportunities thus offered to him he must feel that he would suffer in London from disabilities so serious as to annul the benefits.

Readers of THE LANCET know the position so well that it can be put before them quite briefly, though the remedy is still, and will possibly for some time remain, the subject of debate. These are the cardinal facts. Medical education in London is in a displayed and confessed condition of muddle; the muddle is made worse by the shortage of medical students and consequent pecuniary loss to the schools; the London medical student cannot secure a medical degree upon terms which obtain elsewhere, though his qualifications for a degree are undeniable. How far these things depend upon one another is not as unquestioned as is the existence of the condition but the connexion is undoubted. There are in London 12 medical schools, each complete in itself and all offering to teach the medical student everything that he requires from the beginning to the end of his curriculum. Each school possesses, in addition to lecturers upon, and demonstrators of, anatomy and physiology, teachers of all the ancillary subjects and each has striven to provide the necessary laboratories and class-rooms for such an undertaking. Fifty years ago, the scope of the medical student's education being what it was, a medical school attached to a metropolitan hospital could easily provide all the necessary educational facilities for a student; 25 years ago the 12 separate schools were all working fairly satisfactorily as separate institutions, although those few persons who considered the matter outside their own immediate interests were able to prophesy imminent trouble. Now the scheme has considerably broken down. Since 1880 the expenses of medical education have been enormously increased. The development of physiology, the recognition of the intimate connexion between practical chemistry and biology on one side and pathology on the other, the increase of our familiarity with electrical phenomena,—these and many other advances in our scientific knowledge will occur to the mind at once as involving a medical school that would aspire to be completely equipped in grave expense. All the London medical schools responded gallantly to the calls made upon them by the progress of modern medicine; some were enabled to do so much more completely than others but the story has been on every side one of unselfish profusion. The medical education of England had, to a great extent, been confided to the London medical schools and the men responsible for those schools made strenuous efforts, and for some time with no mean measure of success, to meet the demands upon them. But it has of late been borne in not only upon the authorities of the smaller medical schools but upon many connected with the larger schools that it is useless to continue to struggle for the maintenance in London of 12 separate centres of medical education.

Several of the larger hospitals might be able to maintain themselves as individual centres but amalgamation was seen to be the right course for the smaller schools. To support in several places upon money that could be ill-afforded a laboratory and a class-room for the instruction by an unpaid teacher of a small group of lads was seen to be hopelessly uneconomical when one teacher in one class room could be paid to do the work properly. And as the numbers of the London students began to drop off this position became clearer. At first it led to increased expenditure by the smaller schools in the idea of attracting more students whose fees would justify the cost to the school—and in some cases to the hospital—of provision for an up-to-date education; but lately the futility of this course has been recognised. For lately, owing to several things, but chiefly to the reconstitution of the University of London, whereby the medical schools of the metropolis became affiliated to the University, the position of the London student became better understood. It became recognised that to a great extent he was not deserting the London schools so much because he found the teaching in them inadequate as because for several reasons it was very difficult for him to obtain a medical degree.

Immediately the subject of a medical degree for the London student is mentioned we are confronted with the dilemma that there is a medical degree available for him and for the rest of the empire—that of the University of London. "Why," asks the partially informed man, "does he not take advantage of what is offered to him?" Or, regarding the matter a little differently, "Why should the standard of the London degree be lowered that the London student may be able to pass the tests?"

It is true that the degree in medicine of the University of London is of a high standard—probably when every branch of medical learning is considered with the examiner's eye the London degree is the best medical degree in the United Kingdom. But it has not been wholly the intellectual difficulty of obtaining the degree that has kept the London student in greater numbers from competing for it—the fault has lain also, and to an extent that has not been realised, in the absence of any systematic teaching for London medical students directed towards their obtaining the London degree. The 12 schools were strong, some of them, in one direction and weak, some of them, in others. In one school the dean, seeing the paramount value of a medical degree, would exhort the

[2] The Times, Feb. 22nd, 1905.

student to obtain it; in another school the dean might not be over-interested in that matter or, indeed, in the students generally. The matriculation at the University of London undoubtedly was an obstacle to many students. This is still a test examination offering considerable difficulty to a lad on the threshold of a professional career, but the examination has now been made more reasonable in scope and design and should offer no insurmountable barrier to the properly taught student. And if he has some difficulty in the beginning of his career that is where difficulty should come, for the proper grounding that is insured by a searching, but not unduly hard, examination at the beginning serves the student an excellent turn later. A good general knowledge, which may be elementary but must be sound, of the preliminary subjects makes the rest of the curriculum so much simpler that the fortunate student who has begun by passing a fairly rigorous test can never understand the trials and vexations that seem to await his contemporaries at the hands of their examiners. At the University of London, after passing a distinctly high grade of matriculation the student finds himself confronted with a preliminary scientific examination which, again, is of the nature of an honour examination. Here the well-grounded candidate should be ready for the fray, but no soldier, however good, can fight effectively without weapons. And some of the London medical schools have not until recently provided the proper facilities for passing the examination. There is not a school in London, and there never has been, where an intelligent student of rather exceptional industry, bringing method to bear upon his work, could not pass the examinations for the London degree, but every student is not by nature orderly and industrious—nay, more, he may possess neither quality as they are understood by examiners and yet possess them both in a high capacity as a practical man for the practical issues of life. (Be it understood that examinations, whatever their purpose, are not necessarily practical and that the medical examinations of the University of London are, and have been, in no way distinguished for their practical character.) These facts put a different construction upon the comparative failure of the London medical student to graduate in medicine at his University. It will be seen at once that the elements of chance have played a great part in his career and yet may do so. His school may not provide the necessary facilities or teachers; his classes in special subjects may be so small that the stimulus of competition may be much absent; his curriculum is not mapped out for him with a medical degree at the inevitable end; on the contrary, there are alternative tracks along which he can reach the Medical Register. All these things are obstacles to a smooth career and though they are frequently surmounted by young men possessing no vast claims to mental superiority still—now one, now the other, now all combined—they prove fatal to the efforts of many who in a more favourable environment would be able easily to satisfy intellectual tests similar to those of the University of London. It is a partial view, therefore, that regards the fact that a great many London students do not obtain a medical degree as a necessary reason for demanding the lowering of the standard for obtaining that degree. This is to shut our eyes to the truth that medical education in the metropolis at the present moment, in spite of much excellent individual effort, is a somewhat disorderly affair which requires consolidation and simplification very badly.

The public as well as the medical profession has lately had a chance of seeing the situation clearly, for it was brought into considerable prominence at the beginning of this year by a valuable report made to the King Edward's Hospital Fund for London by a small committee consisting of Sir Edward Fry (chairman), Lord Welby, and the Bishop of Stepney (Dr. Cosmo Gordon Lang). This committee was appointed by the King Edward's Hospital Fund for London in response to a growing feeling that money might be diverted from the objects for which it was intended if hospital authorities, choosing to consider their hospital and its attached school inseparable bodies, should make up the deficiencies in the school accounts out of moneys received for the charitable institution. The terms of reference to Sir Edward Fry's committee were very simple. The members were asked to consider and to report whether any money given or subscribed for the relief of the sick poor to the 12 London hospitals having medical schools is used directly or indirectly by all or any of those hospitals for the maintenance of medical education. The arrangements of the hospitals exising in January, 1905, were to be taken as the subject of the inquiry, and the committee was asked also to report, in the event of any hospital subsidising its school out of money properly belonging to the hospital, whether the hospital received an adequate return for such subsidies. The committee got to work with commendable promptitude, being a small and thoroughly competent body with definite issues before it, and made its report at the end of February. The report found that two hospitals only out of the 12 could be acquitted of the charge of subsidising their schools out of hospital funds; that two medical schools could not be ascertained to be clearly deriving any pecuniary benefit from their associated hospitals; and that all the other eight medical schools directly or indirectly received contributions from hospital funds. With reference to what repayment was made by the medical schools to the hospitals for their subsidies the committee reported that no return was ascertainable from the schools which could be held to recoup the expenditure of money upon pathological and bacteriological laboratories, though it was allowed that the schools supplied the hospitals with a valuable amount of skilled gratuitous service. Finally, the commissioners added to their report the following paragraphs[1] which were only loosely related to the terms of reference but which are of the greatest value as showing a sound appreciation of the position of the London student:—

"25.—We have formed the opinion that a broad line of distinction ought to be drawn between the studies of the first three years of a medical student's curriculum and the studies of the last two years—or, in other words, between the preliminary and intermediate studies on the one hand and the final studies on the other; and that whilst the latter studies can only be pursued with advantage within the walls of a hospital and nowhere in the world with more advantage than in London, the earlier studies have no real relation with a hospital and are therefore more properly to be pursued in an institution of a university character; and further, that the attempt of many of the hospitals to associate with themselves schools teaching the preliminary and intermediate subjects is a great, if not the chief, source of the exhausted condition of the funds of many of the schools and the consequent demand of the schools on the funds of the hospital.

"26.—It is therefore with great satisfaction that we find that the statutes of the University of London (Paragraph 80) direct the Senate to 'use its best endeavours whenever practicable to secure such common courses of instruction for internal medical students in the preliminary and intermediate portion of their studies under appointed or recognised teachers at one or more centres'; and if this object can be carried into effect we believe that it will free some of the schools from burdens which they find it difficult to bear."

These paragraphs were seen at once to strengthen enormously the hands of those who believe that in the reconstitution of the University of London lies the salvation of the London student. A central school at the University, or two or three central schools founded as integral parts of the University, would secure for the London student proper education in all the preliminary parts of the examination. He would be taught by well paid professors in well-furnished laboratories—he would, in short, enjoy a proper educational training, well organised, and well directed to a definite end as does his brother student in Liverpool or Edinburgh.

The efforts of the present teachers of the introductory and ancillary subjects in London must not be despised any more than must those of a small hospital, desperately short of money, which founds and tries to support all the machinery for a modern scientific medical education at the cost of £5000 or more. The hospitals and schools of London have struggled manfully to deal with the situation. They have strained their resources—one or two of them to snapping point—in their endeavour to fulfil their proud functions of the past and their lecturers and demonstrators have gallantly seconded their efforts by doing admirable unpaid work. But the students are not attracted and without the students the struggle cannot and need not be continued.

The common experience of those who have interested themselves in the London student, no less than the report of Sir Edward Fry's committee, shows these three things and we

[1] See THE LANCET, Feb. 25th, 1905, p. 521.

have to make up our minds to what degree they are interrelated. We have:—(1) a decided falling off in the numbers of the London students; (2) a system of medical education that is manifestly faulty as well as uneconomical; and (3) undoubted difficulty in obtaining a medical degree in London. Cannot all these three things be related so that if the University of London can provide the proper scheme of education the students will return to the London schools where the best clinical material for their later studies may be obtained? And should not the degree of the University of London be secured by a good proportion, say 75 per cent., of the students when they receive proper teaching to that end? I believe so, and I do not attach great importance to the cry that a medical degree for London students implies the lowering of the standards of the degree of the University of London. With considerable disadvantages the London medical student as a rule takes the diplomas of the English Conjoint Board, and we know that this final examination is of a really high character. Those qualified by the Board take high places almost invariably when they enter for competitive examinations; and the number of men who, possessing the double diploma of the London Conjoint Board, reach high positions in private practice and in public appointments is great. These things go to show that the want of a medical degree to the London student is an accident due to faulty arrangement, but an accident which may militate so seriously against his future career as to have decided many students to seek their medical education elsewhere than in the metropolis. Many hospitals—London and provincial—all the important ones in fact, have laid it down that their medical staff shall be graduates in medicine. The mere diplomate, though he may be known to have passed an examination that would have amply secured for him a doctorate at centres other than London, cannot compete for posts at hospitals against the holders of medical degrees of any sort. And in private practice he is liable to be told that whatever the people may call him he is not a "real doctor." The London student knows all this too well, and the columns of THE LANCET have borne frequent testimony to the reality of the grievance that has been suffered, and still is being suffered, by the London student. But the situation has not as yet been remedied.

The question is, Can the newly constituted University of London come effectively to the rescue? There is no doubt that the Faculty of Medicine of the University has done its best to meet the case. When the Senate of the University came into office it recognised the obligations imposed upon it by statute and requested the Faculty of Medicine to consider the position of medical education with the view of reform. The Faculty of Medicine, consisting of some 400 recognised teachers, many of whom are connected with the London medical schools, appointed a committee from which it received an important report. The gist of the report can be realised from its result, for a movement was at once inaugurated for the foundation of an Institute of Medical Sciences to serve as a central school for the education of the students of the University in those subjects the study of which must precede professional study proper—which would necessarily be undertaken at a hospital. An appeal was made to the public, signed by Lord Rosebery, the Chancellor of the University, and all the chief officers of the University, begging for the immediate support of an Institute of Medical Sciences. This appeal was received by the whole of the press of London with outspoken approval and met with a prompt return, several munificent donations being received. Subsequently a letter, signed by the treasurer or chairman of every London hospital concerned, was addressed to the Chancellor of the University endorsing the action of the Senate. All these important and responsible officials, who had been compelled by the positions which they held in connexion with the general hospitals of London and their medical schools to give the proposal that the University should undertake the teaching of the preliminary scientific subjects of the medical curriculum the most serious consideration, had come to the same opinion. They were convinced, and had no objection to saying so publicly, that the adoption of the recommendations of the Royal Commission in favour of the concentration of the teaching of the preliminary subjects had become a matter of urgent necessity in the interests alike of the hospitals and the medical schools.

It must not be supposed that this opinion is held unanimously by all London medical teachers; on the contrary, there are teachers at the London medical schools who consider the plan of fusion of all the schools into one central institute, as far as the purely school subjects are concerned, to be a mistaken policy. They admit that the smaller schools depend for their very existence upon some amalgamation scheme and think that these schools might well enter into a form of combination among themselves for courses in the non-professional scientific subjects, leaving anatomy and physiology still in the hands of each hospital school. The larger schools they consider might, being affiliated to the University of London, be helped by the University with any money that the University can raise for such educational purposes, but it seems in their opinion unwise to dissociate all preliminary science teaching from the teaching of the purely professional subjects (which must be taught at a hospital) because day by day practical medicine is becoming more and more dependent upon laboratory inquiry. The opponents of a scheme of centralisation use the argument of economy every whit as keenly as its advocates, as can be seen by reference to Mr. Henry Morris's able oration delivered before the Medical Society of London on May 15th, and published in THE LANCET of May 20th, p. 1313. Much money has already been spent upon perfecting the medical schools of the various hospitals and to a certain extent this money will be wasted, while much more money is yet required before the Institute of Medical Sciences becomes a possibility. But the wastefulness of removing the study of the preliminary sciences from these numerous newly constructed institutions is not as great as it looks. Annual subsidies from the University to the different efficient centres would mean year by year a set of separate smaller payments that would in the aggregate amount to more than the one set of large payments necessitated by a central institution, while many more chances of maladministration would be introduced. Again, the money already subscribed for and spent at the separate medical schools will not be wasted entirely, or even at all. The laboratories, intended for the pursuit of physiology and chemistry, can all be employed for those sciences medically applied—i.e., for pathology. There is great and immediate need in London for improved clinical and pathological laboratories if London is not in this respect to drop behind the provinces, for everyone recognises as the most salient characteristic of modern medicine its association, through pathology, with chemistry and physiological chemistry, an association which grows momentarily more intimate. None of the money spent on bringing medical schools up-to-date will be wasted. The laboratories can simply be used to supply other needs that are very severely felt. The huge size of London is an argument against making it compulsory upon all students to attend one place and one only, but there might be one Central Institute of Medical Sciences at the University of London and two others, perhaps, auxiliary to it; there can be no doubt, however, that economy will be best served by the concentration of the science teaching of the medical student in one, two, or perhaps three centres.

These things have occurred of course to the minds of the Senate of the University of London, for this body has lately appointed a committee to confer with representatives of University College, London, and King's College, London, and of the schools of the University in the faculty of medicine as to the practicability of securing common courses of instruction in the preliminary and intermediate subjects of medical study at University College and King's College, such common courses to form part of a scheme for the concentration of the study of those subjects in the University. The wish is to utilise to the full extent the existing opportunities for concentration afforded by University College, London, as a northern centre and King's College, London, as a southern centre while waiting for the foundation of a Central Institute. It is recognised that the resources of University College and King's College are inadequate to accommodate all the students at present in the London schools and for a time it will be necessary to continue the teaching of the preliminary and intermediate subjects at some of the schools. Naturally it will be the larger schools—those of St. Bartholomew's Hospital and London Hospital, for example—that will remain for some time unchanged and it is at these schools that permanent resistance to a complete centralisation scheme may be expected. Every school naturally resents being forced into a centralisation scheme, for any method of amalgamation wears the appearance of confessed weakness, and the large schools, where as yet no urgent necessity presses for the strength that comes from

union, may well be expected to make a fight for individuality. Conscious of having done their work thoroughly well they do not see why they should give up doing it and the feeling is one with which we must all sympathise.

Yet in the interests of the London student we must wish earnestly to see the day of amalgamation approach. The larger schools may say that it is not the inefficiency of their teaching that has caused the dearth of London students; but rather the facilities offered by other medical centres for attaining a medical degree. To this the reply is that equal facilities can only be obtained under an amalgamation scheme. Such splendid work has been done by London teachers in adverse circumstances, and in return for little or no payment, that it would be indeed ungracious to suggest that the quality of the teaching is not what it was, but without making any such suggestion it is undoubtedly true that some of the best London teachers are snapped up by other medical schools and well paid by them. So that again centralisation appears as the remedy for existent evils. The bringing of all the medical students of London, at the beginning of their career, into one of two or three schools which are not connected with this or that hospital but which form an integral part of the University of London would naturally turn the student's eye from the beginning of his career upon the M.D. of London as his proper goal. All his early education would be towards that end, and being systematically instructed, he would not find the purely scientific examinations so hard as to form an unjust barrier against his legitimate aspiration to be a medical graduate of his university, thus escaping the drawbacks of professional life without the title of Doctor.

Amalgamation will certainly take a step forward quite shortly and we shall then have practical experience of its value to the London medical student. To prophesy that it will to a great extent remove his grievances may seem over sanguine, but is it? At a central school he will receive from selected teachers proper training. He will then go to his hospital well grounded in science, well prepared for future teachings, and definitely embarked upon an attempt to obtain a medical degree. At the hospital he will receive the individual attention that at a central school he may have lacked, and his practical education by the bedside can hardly fail to be improved by the lightening of the educational burdens of his teachers—the medical staff of the hospital. There seems to me no reason why 75 per cent. of the London students in such circumstances should not obtain the medical degree of their university with no undue delay and with no series of merited or unmerited "ploughings." And when this position is reached it will surely mean that London will again be recognised as *par excellence* the centre of the world for medical education.

*(To be continued.)*

# Looking Back.

FROM

## THE LANCET, *SATURDAY*, June 9, 1827.

IN my preceding letters upon the subject of the Royal Commission for visiting the Universities of Scotland, I stated that the inclinations of that body are believed, by those who are more immediately to be affected by the changes that may be introduced, to tend towards recommending an assimilation, in respect to medical discipline, of the Scotch to the English Universities, by an extension of the period of medical education in the former from *four* to *eight* years, the first half of that period to be consecrated to what is called preliminary study. The writers also on this subject, in Scotland, by whom the Commission are prompted, or whom they may deign to prompt, are earnest in recommending, for *all* the branches of the medical profession, what they call a *due* and *adequate* course of preliminary education, without condescending to explain, or perhaps knowing themselves what precise meaning they would attach to these words. They do not favour us with either a *maximum* or a *minimum*. But, of course, according to their doctrines, the more the young medical brain is saturated with collateral knowledge, before it receives any of a strictly medical nature, the better. If they be sincere in these opinions, I can only say it appears to me that a species of epidemic insanity prevails in this matter; and, if otherwise, that they are only labouring in their vocation—exercising "the art of advancing backwards." This doubling of the period of an education, at present considered by many to be adequately extensive, would of course double the expense, already more than sufficiently enormous to the student, and thus have the effect of limiting the cultivation of medicine, as a profession, to the wealthier classes of the community. It would prove highly detrimental to the public, and is wholly foreign to the spirit of the institutions of a free country. On the part of the student, it would be a grievous waste both of time and money, for which he could not reasonably hope, by future professional exertions, to obtain adequate remuneration. But this is not all; for as I said, in one of my former letters, "unless the head of the medical student have an infinite capacity for knowledge, the less it is loaded with attainments not necessarily connected with medicine, the more it is likely to imbibe of strictly professional acquirements." I therefore concur with Dr. Duncan, jun., that, "in devising plans for the reform of the education of professional men, it is of the greatest consequence to keep constantly in view the distinction between those kinds of literary and scientific knowledge, which are absolutely indispensable to the safe exercise of the profession; those which it is desirable, and for the interest of the practitioner that he should possess, and those which are merely ornamental. "Any system," says he, "which will have a tendency to lead him to neglect any branch of which he ought not to be ignorant, will never be compensated by any extent of knowledge of those of which his ignorance is harmless. Medicine is a practical profession. That knowledge is most essential to the students, which renders them the most useful servants of the public; and all reputation for extrinsic learning, which is acquired at the expense of practical skill, is meretricious, and deceives the public by dazzling their judgment."[1]

[1] Excerpt from a letter to the Editor of THE LANCET, dated London May 18, 1827, and signed "An Anti-Monopolist, C."

UNIVERSITY OF CAMBRIDGE.—On June 1st Mr. Beck, Master of Trinity Hall, was elected Vice-Chancellor for a second year.—The special board for medicine has proposed a scheme by which candidates for the M.B. and M.D. degrees who are resident abroad and have passed all their examinations may be allowed to graduate *in absentiâ*.—A studentship in Ethnology has been founded in the University in memory of the late Anthony Wilkin of King's College.—Dr. L. Humphry, Dr. S. West, Dr. W. Hale White, and Dr. J. Rose Bradford have been appointed examiners in medicine; Dr. W. Rivers Pollock and Dr. M. Handfield-Jones, examiners in midwifery; and Mr. T. H. Kellock, Professor H. G. Barling, Sir Hector C. Cameron, and Mr. C. W. Mansell Moullin, examiners in surgery for the ensuing academical year.

NATIONAL HEALTH SOCIETY.—The annual distribution of medals and certificates given by the above society took place on May 30th at Grosvenor House, London, W. Princess Christian handed the awards to the recipients and Lord Derby presided. Amongst those present were Sir William Church, Sir Frederick Treves, Sir William Broadbent, Sir Thomas Smith, Sir James Crichton-Browne, Dr. Robert Hutchison, and Dr. Clement Godson. Sir William Church, in proposing a motion to the effect that the work of the National Health Society is deserving of all support, its object being the diffusion of the knowledge of the laws of health among all classes of the community, especially among women, who are responsible for the hygiene of the home and the rearing of healthy children, said that during its 32 years of existence the society had done incalculable good. Sir Frederick Treves seconded the motion, remarking that though the report of the Privy Council Committee on Physical Deterioration revealed nothing of a very alarming character it had certainly shown a state of affairs which was not creditable to the country. It was within the province of the National Health Society to find a remedy for the evils shown to exist by that Committee. The motion was adopted and a vote of thanks to Princess Christian, who is president of the society, terminated the proceedings.

THE LANCET.

*LONDON: SATURDAY, JUNE 10, 1905.*

## Air-borne Infection from Small-pox Hospitals.

IN THE LANCET of June 3rd, p. 1520, we referred to the excessive local incidence of small-pox which has so often been traced when hospitals receiving acute cases of this disease have been situated within or near populous neighbourhoods, and to the remarkable evidence of this characteristic "hospital influence" which has been afforded by different epidemics during the last few years. We revert to the subject in order to consider the trend of recent discussions on the cause of these repeated manifestations of small-pox "hospital influence." More than twenty years have passed since Mr. W. H. POWER suggested that the infective ability of particulate matter derived from acute cases of small-pox was not necessarily limited in its range to the room containing the patient or to the interior of a hospital in which small-pox patients were under treatment. At that time, as now, the high degree of infectivity (to unprotected persons) of the atmosphere of a small-pox ward or sick room was generally recognised and was attributed to what no doubt is its true cause, the presence in the air of an abundance of floating particles derived from the affected portions of skin and mucous surfaces. Mr. POWER, recalling familiar facts respecting the transit of various kinds of floating particulate matter for considerable distances through the open air along lines of definite convection currents, suggested that in course of the many days in which a small-pox hospital is used during an epidemic occasions now and then arise when infectious particles carried upwards from the hospital are conveyed by local air currents to places in the neighbourhood of the hospital without undergoing any great degree of dispersion. The hypothesis of "aerial convection" depends on an assumption of the probability that this may occur. The necessity for the hypothesis was that it afforded a consistent explanation of the sum of the facts which had then been ascertained with regard to "hospital influence": in particular the recurrence and the persistence of small-pox round the same hospital in different epidemics; the manifestation of "hospital influence" at different hospitals, notwithstanding strict administrative precautions and close supervision over the incomings and outgoings of nurses, porters, visitors, and ambulances; and the fact that the exceptional incidence of small-pox was seemingly independent of the lines of communication and traffic to and from the hospital but was distributed in all parts of the neighbourhood of the hospital. It afforded an explanation likewise of the otherwise perplexing circumstance that the incidence of small-pox on houses near the hospital was graduated in its intensity, the percentage of houses attacked becoming less as the distance from the hospital increased. Moreover, Mr. POWER found that manifestations of "hospital influence" coincided with meteorological conditions (especially calm days, or days with light and variable airs from almost any part of the compass) which would favour local convection currents of the kind supposed. The alternative theory that all these phenomena of "hospital influence" had resulted in some way or other from personal communication and traffic was tested by Mr. POWER in a variety of ways but after prolonged inquiry failed to afford any adequate explanation of the facts. Since Mr. POWER'S work numerous other instances of "hospital influence" have been investigated and analysed on similar lines and with like results. When it has been possible to give the labour necessary to ascertain the proportion of houses attacked at different distances from the hospital clear evidence of graduation has practically always been obtained. In the case of some hospitals, however, the position has been complicated by the inadequacy of the buildings, by overcrowding, mismanagement, and insufficient supervision of patients and staff. Accidents such as the escape of patients from the hospital grounds have occurred, and there has been clear evidence of communication between patients within the hospital inclosure and persons outside. So that in these cases, whatever may have been also taking place as to aerial convection, it has been evident that opportunities have been afforded for small-pox to spread in the neighbourhood of the hospital by personal communications. It has been maintained in view of these instances that, if only the facts could be fully known, "hospital influence," wherever and whenever it has occurred, would be found to have resulted wholly from personal infection of this kind. This view was developed and skilfully defended by Dr. A. NEWSHOLME in the recent discussion at the Epidemiological Society. The argument is that it is practically impossible to prove a negative; that it is therefore impossible in the case of the best-administered hospital to say that no communications have taken place between patients or infectious members of the staff on the one hand and persons living near the hospital on the other; and that the hypothesis that numerous and persistent communications of this kind have, after all, occurred is always to be preferred to the hypothesis of aerial convection.

The difficulty in accepting this position, however, is that it involves a series of assumptions—for example, a continued series of visits by infectious patients or staff to houses all round the hospital, graduated in inverse relation to the distance—which, when applied to a number of hospitals in different situations and under widely different conditions of administration, impose a far greater strain upon the imagination than any involved in the aerial hypothesis. And the most recent examples of "hospital influence" are by no means easy to reconcile with Dr. NEWSHOLME'S theory. As Dr. BUCHANAN pointed out, the hospitals lately concerned have been those of cities which leave little to be desired in the way of hospital organisation and administration and readiness for emergency. Nevertheless, Liverpool has been unable to prevent "hospital influence" being exerted by each of its three small-pox hospitals, while in Glasgow the characteristic spread of the disease has been manifested year after year in four successive epidemic periods. In the case of

the hospital ships in Long Reach it would be necessary to assume numerous and periodic communications between patients or staff and a variety of persons on the opposite bank of the Thames, nearly half a mile away, an assumption for which there seems to be little warrant. A further difficulty arises in explaining the case of Gateshead, where the "hospital influence" was mainly felt, not in Gateshead itself, the place from which the patients came and which furnished all the hospital traffic, but in the district of Felling, which sent no patients to the Gateshead Hospital and had no traffic or other communication with that hospital. Nor can the hypothesis of unknown personal communications be reconciled with the experience of Monsall Hospital which Dr. J. NIVEN related to the Epidemiological Society. Here in the course of a few days small-pox appeared in four separate wards of the fever hospital which adjoined the small-pox hospital, while at the same time an outbreak occurred in the neighbourhood beyond. Not only did inquiries fail to trace personal communication in either set of cases but it was evident that any assumption of unknown communications which could explain the fever hospital cases could not also account for the outbreak outside and *vice versâ*. On the other hand, both outbreaks were readily explicable by aerial convection, which would have been favoured by the prevailing meteorological conditions. It is well known that no indication of "hospital influence" has been obtained in the case of hospitals containing patients suffering from other diseases usually received into isolation hospitals, scarlet fever, diphtheria, or enteric fever, or in the case of hospitals receiving only convalescent cases of small-pox. When patients in the acute stage of these four diseases are compared it is probable that small-pox, by reason of the character and abundance of its rash, would be capable of causing the highest degree of contamination of air with infective matter. In this connexion Dr. NIVEN'S recent experience of the absence of small-pox from the neighbourhood of Clayton Vale Hospital at a time when the skin of all the acute cases was kept thoroughly and systematically oiled or was protected by means of special dressings deserves mention. If in future epidemics it should still become necessary to use hospitals in populous neighbourhoods for small-pox or to treat small-pox patients at their homes Dr. NIVEN'S system of minimising the risk of aerial contamination would seem well worthy of trial.

## "Toujours en Philanthrope."

IT can very rarely happen that a book which is in its essential nature an autobiography, and still more rarely one which is the autobiography of a non-medical writer, can call for such notice at our hands as is implied in making it the subject of a leading article; but the volume entitled "In Peace and War," recently published by Sir JOHN FURLEY, appears to us to be worthy of such an exceptional distinction. It contains the record, for something like 40 years, of a life which has been almost continuously devoted to the organisation of assistance for the wounded in war and also, in the intervals between campaigns, to the best methods of bringing "first aid" to the victims of accidents in peace. It covers the period from the outbreak of the war between Germany and Denmark in 1864 to the close of our own recent struggle in South Africa and it brings vividly before us, with all the force of simplicity, something of the lives and the acts of the great civilian surgeons who have carried their skill to so many battle-fields, as well as of those of their more strictly military colleagues. Unlike many of the people who from time to time declare their "great interest" in medical science, Sir JOHN FURLEY makes no pretence to the possession of professional skill or knowledge and he certainly would never volunteer an opinion, in any given case, either as to the course which it would be judicious for the surgeon to pursue or as to the probable results of his ministrations. The work which he made his own was to secure that, wherever there was need, there, so far as foresight could provide, assistance should be at hand, not only in the shape of skilled surgeons and nurses, but also in the shape of all the things essential to the success of their ministrations, such as stretchers, ambulances, food, clothing, and medicines. Gifted with an infinite power of contriving and persuading, eloquent in many languages, felicitously audacious whenever audacity seemed the road to success, scornful of red tape, oblivious of frontiers, and always on the best possible terms with "our friends the enemy," Sir JOHN FURLEY has been the good genius of modern warfare. It can be no matter for surprise that his precise status, his right to be in this or that particular galley at a given time, has been a puzzle to many martinets and to many politicians, or that the KING of ITALY should have given expression to his perplexity on the subject. "They tell me," said His Majesty, "that Mr. FURLEY is not in the medical profession and yet I hear him called sometimes doctor and sometimes professor and to-night he was announced as Professor Dr. FURLEY. I have seen him more than once on Red Cross missions and he was here at the International Medical Congress. In what capacity does he act?" Being told "doubtless as a philanthropist," His Majesty graciously recognised the character and, when bidding adieu to the guests, expressed his hope of seeing Sir JOHN FURLEY again before long, "toujours en philanthrope."

It is a curious reflection that some of the most considerable advances of medical science during the last half century have been due to the labours of the great French *savant* who was not himself a physician, and that some of the most considerable advances in the direction of rendering surgery accessible to the injured have been due to those of a practical organiser who is not himself a surgeon. In times of peace, the work of directing Red Cross organisations being temporarily in abeyance, Sir JOHN FURLEY has found ample employment for his energies as one of the most active members of the Order of St. John of Jerusalem in England, and in that capacity has taken a very considerable share in the construction of that network of ambulance service which now covers the whole of the British Empire, and by means of which thousands of people, more especially among those who are likely to be brought into contact with accidents, have been instructed in the proper methods of dealing with them at the moment and on the spot. At every railway station men are now to be found who have been taught how to handle an injured person, how to lift and to

carry him, how to extemporise a splint which may prevent a simple fracture from becoming a compound one, how to arrest hæmorrhage, and, in short, how to deal with almost any description of injury in a way to prevent it from being aggravated by roughness or want of skill. All this is due to the operations of the Order, and Sir JOHN FURLEY has not only promoted these operations as an active member of many important committees, but he has also been distinguished as an inventor of ambulances and cognate apparatus. His long experience has shown him exactly what is likely to be required and his mechanical skill and ingenuity have supplied contrivances which do not seem likely to be superseded. Perhaps his last achievement of this kind was the designing and superintending the construction of the South African hospital train, which consisted of seven bogie carriages, each about 36 feet in length and eight feet in width, the passage through the centre being continuous; four of these carriages were constructed to carry 72 invalids and 16 orderlies, whilst the others were arranged for two medical officers, two sisters and other members of the staff, a dining room, dispensary, linen closet, kitchen, pantry, and store room. This train was despatched to Ladysmith as soon as the siege was raised and at once took up 54 invalid soldiers with whom it reached Durban on the following morning and transferred them to the hospital ship *German*. The cases taken were the worst that could be selected at Ladysmith and Intombi, and it was not thought possible that all of them could survive the journey of 19 hours. During the 18 months in which the Red Cross Committee was responsible for it, this train made 108 journeys and travelled 42,115 miles. In the first six months the journeys were entirely in Natal but they were gradually extended until they touched Johannesburg and Pretoria. From this point journeys were also made to Komati Poort and once to Cape Town and back. In all, 321 officers, 19 nursing sisters, and 7208 non-commissioned officers and men were carried as patients; and only three of the soldiers and three members of the staff of the train died on the road.

Perhaps the most generally interesting part of Sir JOHN FURLEY'S book is the account which he gives of the siege of Paris by the Germans and of the subsequent outbreak of the Commune with its ghastly history of murder and incendiarism. During these events he seems to have borne a charmed life, and although he was constantly exposed to fire there is no mention of his having sustained a scratch. Every line bears unconscious testimony to his powers of fraternisation, even with the most unlikely people, and the reader obtains many glimpses of a queer society of soldiers of fortune, pressmen, and warlike amateurs of every description, as well as of men holding high command on both sides of every conflict that is described. Of an invitation to smoke and to drink beer with Prince BISMARCK Sir JOHN FURLEY records that he *cautiously* availed himself, and he seems to have gone in and out at Versailles very much according to his pleasure. Another narrative to be noted is that in which he describes his success in liberating a young Irishman named O'DONOVAN, a press correspondent, who was arrested by the Carlists in 1873 on suspicion of a design to poison DON CARLOS, and who had been more than six months in prison, and in daily imminent danger of being shot, when Sir JOHN FURLEY heard of his sad plight. The English Government was unable to intervene diplomatically, as to do so would have been a recognition of the Government of the Junta. In these circumstances, Sir JOHN FURLEY put his head into the lion's mouth, and not only withdrew it safely but succeeded in releasing his fellow countryman and in conveying him over the frontier into France. The episode forms an introduction to a singularly graphic and picturesque account of the battle of Estella, in which, after three days' continuous fighting, the hardy Basque mountaineers totally defeated a force very superior to their own. In a word, it may be said that Sir JOHN FURLEY'S "philanthropy" has taken him into well-nigh every country, during the last 40 years, in which fighting has been carried on, always with the object of minimising the sufferings which it has occasioned. The narrative is a brilliant record of good work done for mankind, and the simple and straightforward style of the author is such as to command full credence for even the strangest parts of his most interesting narrative.

## The Medical Defence Union.

THE annual report recently issued by the Medical Defence Union demonstrates that that body is still in a flourishing condition. The balance-sheet must afford satisfaction to the members, for the sum securely invested proves the financial stability of the society. The legal expenses were high but this only shows that the council has done its utmost for those members who have appealed to it for advice and assistance. It is the just boast of the officials that no expense is spared to obtain the best legal aid possible in each individual case. This procedure is, of course, highly praiseworthy and likely to inspire confidence in the minds of the members. The solicitor's report affords much interesting material for study and reflection. No less than 182 cases were referred to him and completed within the year. Of this number, 61 were concerned with libel and slander against members of the union. In no single instance was a member attacked in this manner without, as a result of the action taken on his behalf, his professional good name and reputation being fully cleared. Viewed from a legal standpoint, there is, as the solicitor points out, probably no class of case in which the element of uncertainty in regard to result is more strongly marked than that of libel and slander. We think, therefore, that the union may feel justly and deservedly proud that of the 383 cases undertaken within the past nine years on behalf of its members in order to vindicate and to protect their professional honour and reputation, in three only have adverse verdicts been recorded. 31 of the 182 cases dealt with in the past year relate to actions for malpraxis which were defended on behalf of members. This is a class of charge which may be easily brought against a medical practitioner and may prove very costly to defend. Further, such actions are generally instituted by persons who have no means of their own and consequently are unable to pay any costs in which they may be mulcted.

Litigants, however, appear to have become impressed with the knowledge that, unless there is something actually tangible to go upon and their complaint has some foundation more substantial than that of mere lay opinion, it is an unwise expedient to bring an action against a medical practitioner who has at his back the powerful resources of the union. Consequently the number of cases under this particular heading shows a decrease rather than an increase as years go by.

The work of the union does not lie, however, entirely in individual defence of its members, but collective defence also claims the attention of the council. Every endeavour is made to suppress unqualified practice and several cases of this nature have been undertaken with success during the past year. A number of cases of impersonation have also been dealt with. The thanks of the whole profession are due to the union for these efforts to detect and to punish, as far as the unsatisfactory state of the law will permit, those individuals who attempt to deceive the public. We have on several occasions commented on the value to medical practitioners of the various defence associations which are now in existence. To whichever branch of the profession a practitioner may belong he is never free from the possibility of attack by unscrupulous or deluded individuals in matters which seriously affect his reputation. If he attempts to fight such an action alone he will not improbably find himself in a very serious position. The secretaries and the solicitors of the defence societies, owing to their great experience, have become specialists in such matters and we therefore once again strongly advise our readers to become members of one or another of these most useful societies.

# Annotations.

"Ne quid nimis."

## THE VISIT OF THE CHANNEL FLEET TO EDINBURGH: AN INTERCHANGE OF MEDICAL COURTESIES.

IT was particularly appropriate that the medical men of Edinburgh should take the opportunity afforded by the visit of the Channel Fleet to entertain in the most cordial manner the medical officers accompanying the fleet, for Scotland has been the place of birth or the place of education of many surgeons who have held with honour to themselves and to their profession positions in the medical service of the Royal Navy. Two names in particular may be singled out for mention—those of Dr. James Lind and Sir Gilbert Blane—for to them belongs the honour of first attempting to regulate the sanitary condition of the seaman's life, the particular object of their endeavours being the elimination of scurvy. To Blane is generally attributed the discovery that lemon-juice was useful in the treatment of scurvy, but, as a matter of fact, the remedy had been strongly recommended by Lind some years previously. Lind's treatise on scurvy was published in 1754, while it was not till 1780 that Blane published his small book, "On the Most Effectual Means for Preserving the Health of Seamen, particularly in the Royal Navy." Scurvy is, for practical purposes, almost a thing of the past, and on the whole the health of the sailor, whether in His Majesty's navy or in the mercantile marine, is now well cared for, but, none the less, modern shipbuilding and modern conditions of life have introduced new problems of sanitation which require close attention from the medical man. The "ship's doctor" of the future will have to be a thoroughly well-educated physician, surgeon, and sanitarian, and must use every opportunity that he can obtain to exchange views with his colleagues on shore. For this reason the interchange of courtesies between the medical officers of the Channel Fleet and the medical men of Edinburgh is particularly interesting and we congratulate those concerned in bringing it about. On May 22nd Mr. H. Alexis Thomson gave a demonstration to the medical officers of the Channel Fleet of recent methods in the treatment of venereal disease and exhibited slides showing the pathology and bacteriology of venereal lesions, afterwards conducting the party through the installation of Turkish and other baths in the Royal Infirmary and the new gynæcological theatre. Later the Royal College of Physicians entertained the visitors at luncheon, the President, Dr. J. Playfair, being in the chair. On May 23rd Dr. Claude B. Ker took a party over the New City Hospital for Infectious Diseases before lunch, after which he escorted them to Craig House, where they were received by Dr. T. S. Clouston and shown over the splendid building for the treatment of the insane and over the East House after tea, when Dr. W. Ford Robertson gave a most instructive demonstration of the microscopic pathology and bacteriology of general paralysis of the insane. On May 24th Dr. George Mackay gave a demonstration of external diseases of the eye and the use of the electro-magnet and other instruments. The guests then lunched with the infirmary surgeons and were later conducted over the Macewen Hall. On May 29th the medical officers of the fleet gave a luncheon to their entertainers. This was rendered possible by the generosity of the ward-room officers of the flagship, H.M.S. *Exmouth*, who lent their ward-room for the purpose to the medical officers of the fleet. The guests were afterwards conducted round the ship, the turrets, and torpedo room, and were greatly interested. On May 30th Mr. Harold J. Stiles gave a surgical demonstration in the Sick Children's Hospital, thus ending an interesting series. The significance of an occasion that was thoroughly pleasant to all concerned lies in the fact that here we have a definite and successful attempt on the part of the medical officers of the navy to get into touch with their civil colleagues. The medical officers of the services have in the past been isolated even more than their particular circumstances warrant from all professional relations, and this situation has had unfortunate results. But into these services, under improved regulations, we are now seeing a very good grade of officer pass and it seems to us of real importance that whenever an opportunity arises of renewing social and scientific relations with their civilian brethren full advantage should be taken of it.

## THE CENTRAL MIDWIVES BOARD AND THE BELFAST MATERNITY HOSPITAL.

THE Central Midwives Board was established for the purpose of preventing incompetent and uninstructed women from undertaking obstetric work but in connexion with the operations of the Board in the North of Ireland an unfortunate misunderstanding has arisen which, if not corrected, will disqualify many midwives of the very class which the Board was intended to uphold and to encourage. The nurses in question were trained at the Belfast Maternity Hospital, an institution which has existed for more than a century, is a well-known school of midwifery, and is officially recognised as such by the Central Midwives Board. These facts notwithstanding, the Board has seen fit to take up a position which is suggestive of comedy rather than of administrative earnestness by refusing to place on the roll of certified

midwives the pupils who had been trained at that hospital previously to April 1st, 1905. No reason for this singular decision was at first assigned but it has since become known that the nurses were to suffer because a certain application from the Belfast Maternity Hospital was too late in arriving. To this the hospital authorities have replied that the new Maternity Hospital—the largest in Ireland outside Dublin—was not ready for occupation until the end of 1904, that they had informed the Central Midwives Board as to the position of affairs more than a month previously, and had received an assurance that the subject would be considered when the new buildings were ready. The irony of the situation is heightened by the fact that "women in *bonâ fide* practice" a few years ago may be admitted to the roll while these Belfast nurses who have been carefully trained and have passed an examination are excluded. When legislation on the subject of midwives was in progress it could hardly have been the intention of Parliament to bring about such an anomaly as this, and we trust that it will be possible to find a means both of satisfying the requirements of the Central Midwives Board and of avoiding an obvious injustice to the Belfast nurses.

## THE ANALYSIS OF RAIN AND THE PUBLIC HEALTH.

THE abundant fall of rain this week has to some extent allayed a very real anxiety which was being felt as to the shortage of water-supply. The condition of the country was perilously near a serious drought, and when a drought occurs so early in the year and at a time just preceding the summer months, which in normal times are dry, the outlook cannot be said to be assuring. But it is often overlooked that rain has another very important function besides that of supplying water for the field, the stream, and the reservoir. is a very powerful purifier of the air and its cleansing effect is very marked on the atmosphere of cities and towns and manufacturing districts. In fact, the sanitary condition of the air of a given place may be fairly gauged by chemically examining the falling rain for impurities. The quantity of impurities so scavenged is in many instances as remarkable as it is variable. In other words, what may be called the sewage of the air varies in kind and amount in accordance with the number and kind of agencies which are at work polluting the air. An analysis of rain, therefore, conducted at intervals is calculated to afford valuable knowledge of the sanitary condition of a place and it seems to us that no meteorological observations in connexion with their bearing on the public health can be regarded as complete unless in addition to recording the rainfall they record also the analysis of rain as regards impurities. Instances are not wanting to illustrate the valuable indications given, from a point of view of health, by an analysis of rain. Thus the rain falling in Manchester has been found to contain 7 parts per 1,000,000 of free ammonia, 0·3 part of organic ammonia, 47 parts of sulphuric acid (sulphates), and 5·88 parts of hydrochloric acid (chlorides). London has similarly shown 3·4 parts of free ammonia, 0·2 part of organic ammonia, 20 parts of sulphuric acid (sulphates), and 1·25 parts of hydrochloric acid (chlorides). Inland rain, on the other hand, has given the following results: free ammonia, 1 part per 1,000,000; organic ammonia, 0·10 part; sulphuric acid (sulphates), 5·52 parts; and hydrochloric acid (chlorides), 3·99 parts; while the rain collected on the sea coast gave the following: free ammonia, 1·90 parts; organic ammonia, 0·40 part; sulphuric acid (sulphates), 5·88 parts; and hydrochloric acid (chlorides), 56·15 parts. The figures suffice to show the value of this method of investigation and it is interesting to note that according to these results country air contains less impurities than sea air though they are augmented in the latter case by the salt of the sea. The method, too, would give valuable results, we think, in connexion with the attempts to mitigate the smoke nuisance. The impurities of the air which are washed out by the rain would obviously bear a direct relation to the number of chimneys which are polluting the air with filthy smoke. An abatement of smoke, therefore, would be indicated probably by a diminution of the amount of impurity in the rain. We commend the suggestion to that useful institution, the Coal Smoke Abatement Society, which by adopting a system of periodically submitting rain to analysis might obtain direct evidence as to the success or failure of its efforts. We should, at all events, like to see the meteorological observations throughout the country in regard to quantity of rain supplemented by a column recording its quality also.

## THE DANGERS OF CIRCUMCISION AS PERFORMED AMONG JEWS OF THE POORER CLASS.

AT the Stepney coroner's court Mr. Wynne Baxter held recently an inquest upon the infant son of a tailor of the Jewish faith in which the jury returned a verdict of "Death from hæmorrhage after circumcision," adding to this that it was due to misadventure. Before their conclusion was arrived at, however, the coroner had had a good deal to say to the mohel who had performed the rite as to the acts and omissions which had preceded the fatal result and had received from him replies that were not altogether satisfactory. The mohel, a Mr. Baum, had circumcised the child and an hour later had seen that the dressing had come off and had replaced it, and again afterwards, finding that hæmorrhage had recommenced, had taken steps to stop it but had not succeeded. He had then recommended that a medical man should be summoned and after some delay, on account of the gentleman first called upon being absent, a medical man had seen the child. Eventually before the child died three medical practitioners had endeavoured to stop the bleeding and to save his life, and the first of these was blamed by the coroner for not having realised the serious nature of the case when first he saw it. Some discussion took place as to the precise nature of the symptoms and as to the causes which led to them, but the general facts upon which the coroner founded his observations were not peculiar to the particular case before him but were such as may be found arising at any time after circumcision not performed by a medical man, and similar conditions may on any occasion constitute a source of danger to life. Mr. D. A. McCombie, who with his partner, Mr. G. Michael, had been summoned when the child was in too serious a condition for them to be able to save his life, summed the matter up in his evidence by saying that "the case was rather out of the ordinary and the mohel, in his opinion, had failed to recognise fully the fact." The coroner further elicited the intelligence from Mr. Baum that he did not belong to the Initiation Society formed to teach followers of his calling their business. He also drew from him the retort that the members of the society were all young men and that he was an expert mohel. He had stated earlier that he had practised for more than 20 years. This throws light upon his attitude and upon the question of delay, and in these circumstances the coroner's observation was well founded that "mohelim are like midwives and liable to get into trouble if they do not bring proper skill to bear." The operation of circumcision when performed by a layman who has been partially instructed or has had some experience in its performance bears this resemblance to the delivery of a pregnant woman by a midwife that it may be performed in a considerable number

of cases, if not without danger, at any rate without any untoward result calling public attention to the underlying risks. When, however, anything out of the usual course occurs the attendance of a medical man becomes necessary at once and if the unusual symptom escapes notice or if its serious nature is either not recognised or disregarded the absence of timely medical aid is likely to be followed by fatal consequences. It may not necessarily be that the mohel or the midwife is unwilling to ask for the assistance of a medical man owing to a feeling of false pride or of self-sufficiency. It may simply be that from want of actual experience of the kind of danger which has arisen and from absence of such knowledge as medical training, even without actual experience, may impart, he or she may fail to recognise at an early stage the existence of conditions which would claim at once the attention of a medical practitioner. Later the fact that danger is there may be observed but it may then be too late and the obtaining of a medical man's attendance at such a juncture may not be easy. On many occasions, however, apart from ignorance, there will be the risk that the half-trained person, relying upon himself or herself, may resent the implication of want of skill and not only may not suggest the calling in of medical assistance but may actually resist it when it is suggested by others. The coroner in the case under comment did not have this fault to find. Indeed, he called attention to the fact that the mohel had asked that a medical man should be called in, although he had done so later than he should have done. Mr. Wynne Baxter intimated that but for this he should have directed the jury to return a verdict against him of manslaughter.

## LIQUOZONE IN THE CORONER'S COURTS.

AT the Stoke Newington coroner's court Dr. W. Wynn Westcott on June 5th held an adjourned inquest upon two children who died after taking daily doses of liquozone. One case was briefly referred to in THE LANCET of June 3rd, p. 1538. Since then Dr. H. R. Oswald has held an inquest at the Rotherhithe coroner's court upon a woman who had been taking liquozone; he adjourned the inquiry for further toxicological evidence. The main facts of the Stoke Newington cases are as follows. Mr. S., having obtained a free sample bottle of liquozone on May 17th, proceeded to take some himself for the relief of hæmorrhoids and to give some to his wife to relieve her neuralgia; success followed in neither case. The directions covering the sample did not specifically advise its use as a vermicide, but Mrs. S. proceeded to dose her two little girls with half an ordinary teaspoonful of liquozone appropriately diluted and given once daily before breakfast; she believed that her daughters suffered from worms but they were otherwise in very good health; Mrs. S. informed Dr. Wynn Westcott that she considered "germs meant worms." It is apparently common for those who take liquozone to complain of subsequent nausea and "pain in the stomach," the proprietors considering this a proof of its desired activity. There are no explicit directions as to what dosage children should receive: adults are told to take a teaspoonful in water, "for children it must be proportionately diminished." The elder child, aged nearly four years, became ill on May 21st, and when seen by Mr. T. W. M. Harneis on the 22nd she was delirious and collapsed and had had vomiting and diarrhœa; she died from exhaustion on the 23rd. The younger child, aged two years, was attacked with similar symptoms on the 22nd and died on the 26th. The coroner instructed Dr. F. J. Smith to conduct both necropsies. Dr. Smith found all the viscera of the children healthy and normal except for a small patch in the mucous membrane of the stomach of the elder girl which was suggestive of the effect of an irritant poison. Dr. J. R. Wallace gave evidence as permanent medical adviser to the British Liquozone Company; he had often taken liquozone without ill-effects but he had never analysed its contents; he doubted if an overdose could be taken, but he excepted babies from this statement. Mr. Avory, K.C., and Mr. C. Matthews are appearing for the company. Dr. Wynn Westcott again adjourned the inquest until a report could be furnished by Sir Thomas Stevenson on behalf of the Home Office as to the nature and the probable effects of the administration of liquozone in these cases.

## RECOVERY FROM TUBERCULOUS MENINGITIS.

THE possibility of recovery from tuberculous meningitis is denied by many writers, though cases have been recorded in which a patient recovered from what appeared to be an attack of tuberculous meningitis and succumbed to a second, the necropsy showing signs of both recent and old meningitis. In other cases the diagnosis of tuberculous meningitis was borne out by the presence of tubercles in the choroid. The recent operation of lumbar puncture has furnished still stronger proof of the possibility of such recovery. At the meeting of the Société Médicale des Hôpitaux de Paris on May 12th M. Paul Claisse and M. Abrami reported the following case. A man, aged 30 years, was admitted into hospital on March 11th, 1905. He had been in good health until the beginning of the month, when, without apparent cause except overwork, he became weak and the least effort caused fatigue, appetite was lost, memory was impaired, and he suffered from slight but continuous frontal and temporal headache. He slept badly and awoke in the night covered with perspiration. His condition became worse and he lost flesh considerably. The temperature was 100·4° F. and the tongue was furred but moist. Examination of the patient was negative. On March 13th there were temporary delirium, marked retraction and sensitiveness of the abdomen, alternate dilatation and contraction of the pupils (*instabilité pupillaire*), and "paradoxical reflex" (contraction of the pupils in the shade and dilatation on exposure to light). There were no other signs of meningitis, such as rigidity of the neck, Kernig's sign, or modification of the reflexes. Lumbar puncture was performed and 12 cubic centimetres of clear fluid flowed out in a jet. It contained a good deal of albumin and fibrin and an abundance of lymphocytes. Tubercle bacilli were not found in the fluid but two guinea-pigs inoculated with it developed tuberculosis. The patient became drowsy and refused food and when questioned manifested delusions of persecution. On the 14th he became violent, his neck was a little rigid, and the meningeal tâche was obtained. The temperature was 100·2° and he was constipated. The abdomen was always retracted and sensitive. On the 15th there was slight inequality of the pupils. On the 16th there was a tendency to a cataleptoid state and he preserved for a long time whatever position his limbs were placed in. On the 17th he showed some improvement; he answered questions and did not complain of his head but he was still delirious at times. A second lumbar puncture was performed. The liquid removed amounted to 15 cubic centimetres and was clear. It contained less albumin and fibrin and fewer lymphocytes than that removed before. The improvement continued and complete recovery followed. On April 4th a third lumbar puncture was performed and the fluid obtained was perfectly normal. In this case there was a striking parallelism between the improvement in the symptoms and the condition of the cerebro-spinal fluid. The diagnosis of the tuberculous nature of the meningitis was based upon the symptoms, the cytology of the cerebro-spinal fluid, and the inoculation experiments. The symptoms exactly corresponded to those of the delirious form of tuberculous meningitis, which is well known in adults. One of its characteristics is the absence of

severe meningeal symptoms, such as vomiting and Kernig's sign, as exemplified in this case. The cerebro-spinal fluid had the usual characters found in tuberculous meningitis—an albuminous and fibrinous liquid containing an abundance of lymphocytes. As to the non-success in finding the bacillus tuberculosis in the fluid, many writers have encountered a considerable number of failures. Thus Pfaudler could find the bacillus only in 33 per cent. of cases in the early stage of tuberculous meningitis and in 75 per cent. in the last days of the illness. All these cases were fatal, therefore it is not astonishing that the bacillus could not be found in a case of recovery.

## THE COLONIAL NURSING ASSOCIATION.

THIS association was established for providing trained hospital and private nurses for the British colonies and dependencies and other British communities abroad nine years ago and the report for the year ending April, 1905, shows that there has been a steady and increasing demand for nurses. Since April, 1904, more than 50 new candidates have been added to the roll of the association. Of the 121 nurses employed during the year 94 have been in Government service and 27 have acted as private nurses. Last year 109 nurses were employed, 81 by the Government and 28 by private persons. The special demand for nurses possessing a midwifery training has caused the committee of the association to impress upon nurses contemplating service abroad the importance of possessing the certificate of the Central Midwives Board and many of the candidates have been registered under the new Act. The work of the association is hampered by want of funds; its aims—to establish trained nurses in all British communities beyond the sea—cannot be persevered with unless the public subscribe more liberally than they have done hitherto. The address of the association is the Imperial Institute, S.W.

## THE DESIRABILITY OF A STANDARD EYE DROPPER.

THE wide variation in size of the droppers used in ophthalmic work is the subject of contributions in the *American Journal of Pharmacy* for March, p. 125, by Dr. P. N. K. Schwenk, Dr. Wendell Reber, and Mr. M. J. Wilbert. Since the majority of eye drops contain alkaloids or their salts it is important that a correct dosage should be obtained. The administration of too large a quantity of these potent medicaments may produce undesirable results. The excess finds its way with the tears through the canaliculi into the nose and thence into the highly absorbent mucous membranes of the upper air passages, where it is absorbed into the circulatory system. It is usually considered by ophthalmic surgeons that one minim is the unit of measure and that one drop is its equivalent. The strengths of solutions are regulated accordingly, but owing to the wide variations in the eye droppers that are employed corresponding variations are found in the size of drops as delivered into the eye. Dr. Schwenk suggests the employment of a straight dropper with a tip 2·0 to 3·5 millimetres in diameter; a tube of this size should deliver 60 drops of an aqueous solution to the drachm, allowing an inclination of the dropper of 45° to the horizon. The size of a drop bears a direct ratio to the surface from which it is delivered, so that in a curved dropper the solution follows the curve to the point of rest and produces a larger drop than if delivered from a point. The same is true of beaded droppers. Dr. Reber points out that the standard dropper delivers drops of different size with different liquids varying with the specific gravity and other physical characters of the liquids employed. To avoid an excess of a solution finding its way into the circulatory system he cautions patients to press a soft handkerchief over the inner corners of both eyes near the tops of the tear ducts. He considers that owing to the great power of absorption of the mucous membrane of the nose the entrance of one-hundredth of a grain of an alkaloid into the circulatory system in this way would be equal to the entrance of one fiftieth of a grain by the stomach. Mr. Wilbert describes a form of eye dropper as used in Germany which partially overcomes this difficulty. It consists of a small vial having a perforated stopper through which is introduced a corrugated or twisted glass rod which forms the dropper. The advantages of this device are that the glass rod does not hold more than two or at the most three drops at a time, that the drops form and disengage slowly, and are in addition but slightly affected by any unavoidable tremor. This discussion is useful and emphasises the need that exists for uniformity of construction in vessels employed for delivering eye drops. As aqueous solutions are almost invariably employed it should not be difficult to obtain vessels of a given size and standardised to deliver drops of distilled water slowly of such a volume that 60 drops should measure one fluid drachm.

## MUNICIPAL MILK-SUPPLY.

IN an annotation in THE LANCET of April 1st, p. 873, we very briefly referred to the methods adopted by the municipality of the city of Rochester, U.S.A., in regard to the supply of milk. The plan there adopted was mentioned by Dr. G. F. Cleary in a paper which he read at a meeting of the Royal Sanitary Institute on March 25th as an example not merely of the success of a hygienic principle but of practical operation also. Under the supervision of Dr. G. W. Goler every precaution is taken at the Rochester depôt to sterilise not the milk but everything with which it comes into contact.

A central station at which the milk is prepared is organised each season on a farm outside the city, where a trained nurse and assistants have full control of the cows, utensils, bottles, &c., and where all of the milk work is carried on in a portable milk laboratory. Everything coming in contact with the milk is thoroughly sterilised in steam sterilisers. The milk itself is not subject to any pasteurising or sterilising process. Sterilising and pasteurising are only an open invitation to the milkman to be careless in the production and handling of milk. At the milk station on the farm the milk is taken from clean, well fed, tested cattle into sterile cans, which are carried to the barn in sterile cheese-cloth bags. Just before milking the cows' udders are washed. A sterilised cheese-cloth fly cover is placed over the cow, the first portion of the milk being rejected. So soon as the cans are filled they are immediately covered by a layer of cheese-cloth held in position by a rubber band. The cans of milk thus covered are immediately taken from the barn into the laboratory, about 200 yards away, where the milk is properly diluted, sweetened, and turned off into sterile nursing bottles of various sizes of the Siebert type. The bottles are corked with sterile rubber corks, placed in racks, covered with cracked ice, and immediately transferred to the city for use. Of the cleanliness of milk prepared in this way, 43 daily samples were found to average not more than 14,000 bacteria per cubic centimetre, while the city milk for the same period approximated 235,000 bacteria per cubic centimetre.

We now learn that the cost of distributing the milk and, what is far better and more important, of spreading abroad some knowledge of the care and feeding of infants has averaged less than £180 per annum. It is a pity therefore that any hesitation to carry out the supply of milk on strictly hygienic principles is shown, for, as a matter of fact, the cost, whether maintained by public or private enterprise, need not be great and in any case the results are calculated to afford a very ample compensation in the prevention of infant mortality.

## ANTIDOTES TO NICOTINE.

IN a note recently brought before the Académie des Sciences[1] M. C. Zalackas compares the action of strychnine, eserine, and the cruciferous plant Nasturtium officinale as antidotes to nicotine. He finds from experiments on rabbits in particular that there is no antagonism between strychnine and nicotine. With eserine the antagonism is more marked.

[1] Comptes Rendus, March, 1905, p. 471.

A non-toxic dose of nicotine neutralises a toxic dose of eserine, provided that the nicotine is administered before the eserine. In the case of the rabbit the same result was obtained when the order of administering the injections was reversed. But a toxic dose of nicotine does not at all neutralise a toxic dose of eserine, though the neutralisation is apparent owing to the effects of the eserine being masked by the nicotine. It is a curious fact, as Martin Damourette has shown, that nicotine possesses both stimulating and paralysing properties. Now, it sometimes happens that the paralysing effects, which probably form a small part of the properties of eserine, are added to the paralysing effects which form a large part of the effects of nicotine, so that the drugs tend to exert the same action. M. Zalackas considers Nasturtium officinale to be a most useful antidote to nicotine. This plant is rich in nitrogen, iodine, and iron; when it grows in soils containing the two last-named elements it is especially rich in them. The fresh plant is bruised in a mortar and the juice is then expressed and filtered. He describes in detail an experiment on a rabbit. A toxic dose of nicotine (0·025 gramme) was injected into the jugular vein of a rabbit and in the course of a minute the symptoms of poisoning by nicotine supervened. Just when asphyxia appeared to be imminent a Pravas syringeful of the juice, containing 0·3 gramme of caffeine, was similarly injected. After ten minutes diuresis set in, the urine smelling strongly of tobacco. After an hour half a syringeful of the same liquid was administered. As a result the urine was copiously excreted, the convulsions gradually diminished in intensity and frequency, the respiration and circulation became normal, and sensibility returned. The restoration to health was, however, accompanied by a pronounced salivation. Experiments with dogs gave equally satisfactory results, so that M. Zalackas claims Nasturtium officinale to be *par excellence* the antidote to nicotine.

## CEREBRO-SPINAL RHINORRHŒA WITH RETINAL CHANGES.

IN 1899 Dr. StClair Thomson published a monograph on cerebro-spinal rhinorrhœa containing an account of one case observed by himself and of 20 others which he had been able to collect from medical literature. The condition is so rare as to render every case important. In the *American Journal of the Medical Sciences* for May Dr. S. I. Schwab and Dr. J. Green have recorded a case in which retinal changes were present. In eight of the collected cases optic neuritis or atrophy was observed and in five of these vision was reduced to perception of light or completely lost. A woman, aged 32 years, complained of a continuous watery discharge from the right nostril. Examination showed nothing abnormal in the throat or the nose. The discharge began two years before and was continuous both by night and by day. The quantity varied from a few drops to three or four cubic centimetres per hour. When the patient was worried or fatigued the quantity increased. The fluid was clear and tasteless and did not stiffen or stain the handkerchief. When the head was inclined the flow increased. There were occasional headaches which were not influenced by the amount of the discharge. The patient was neurotic and there were increased knee-jerks, anæsthesia of the pharynx, hyperæsthesia in the small of the back, and tremors of the hand. The fluid was of specific gravity 1010 and did not contain albumin or mucin. On centrifugalisation it yielded a few leucocytes. It reduced Fehling's solution. The right optic disc was pale and its inner margin was blurred. The veins were full and slightly tortuous; the arteries were narrow. The left disc was blanched and the vessels were contracted. Four years before the discharge from the nose began the patient noticed haziness of vision and consulted an ophthalmic surgeon who noted: "Neuro-retinitis; swelling 3 D. in the right disc; left disc beginning to atrophy." That the fluid which escaped was cerebro-spinal did not admit of any doubt. Dr. Halliburton, who examined the fluid in Dr. StClair Thomson's case, says: "The diagnosis of cerebro-spinal fluid from other forms of watery flux from the nose need not in future present any difficulty. The constant and long-continued escape from the nostril of a perfectly clear watery fluid should always arouse suspicion as to its subarachnoid origin. When this fluid is found to be free from taste, smell, and sediment, when albumin and mucin are found to be practically absent, and when Fehling's solution is reduced by it, the suspicion becomes a certainty." Little is known as to the etiology of this curious affection. Whether it is due to some inflammatory process or to anatomical defects in the skull are undecided questions. The presence of ocular changes are of great importance because they point to some more general process. In the case recorded above it is noteworthy that the optic neuritis was observed four years before the discharge of fluid from the nose.

THE adjourned annual meeting of the Medico-Psychological Association of Great Britain and Ireland, held on May 18th, was further adjourned to July 19th, in order to receive the report of the statistics committee, and this adjourned meeting will commence at 10.30 A.M. at the rooms of the association, 11, Chandos-street, Cavendish-square, London, W. The Council of the association has fixed July 20th and 21st for the annual meeting, under the presidency of Dr. T. Outterson Wood, at the rooms of the association as above. The honorary secretary will be glad to receive the titles of any papers which members may desire to read at the meeting.

ON Wednesday evening, June 14th, Sir Richard Douglas Powell, President of the Royal College of Physicians of London, will deliver the Bolingbroke Lecture at the Bolingbroke Hospital, Wandsworth, at 8.45. The South-West London Medical Society which is responsible for the arrangements with reference to the Bolingbroke Lecture, extends a cordial invitation to all members of the medical profession to be present on the occasion. The subject of the lecture will be Some Clinical Lessons from the History of Medicine in the Last Half Century.

THE medical officer of health of Cape Colony states that for the week ending May 13th the condition of the colony as regards plague was as follows. At East London eight cases and at Queenstown one case were discovered during the week, all the patients being natives. Plague-infected rodents were found at Port Elizabeth, Uitenhage, East London, and King William's Town. In the other districts of the colony no case of plague in man or the lower animals was found.

WE regret to announce the death of Mr. Frederick James Gant, F.R.C.S., which took place on Tuesday last, June 6th, at his house, 16, Connaught-square, London, W. Mr. Gant, who was for over 50 years connected with the Royal Free Hospital, was the author of a "Manual of the Practice of Surgery," which in its day had considerable popularity among students.

AT a meeting of the council of the Medical Defence Union held on June 1st Dr. W. A. Elliston, ex-President of the British Medical Association, was elected President of the Union, *vice* Mr. M. A. Messiter, resigned.

Mr. W. Bruce Clarke, surgeon to St. Bartholomew's Hospital, will be a candidate for a seat on the Council of the Royal College of Surgeons of England at the approaching election.

# SANITATION AND THE PANAMA CANAL.

## THE SOLUTION OF CERTAIN CLIMATIC AND HYGIENIC PROBLEMS.

BY JOHN GEORGE LEIGH.

### II.[1]

THE most prominent and noteworthy characteristic of the climate of the Isthmus of Panama, as compared with that of more temperate regions, is the remarkable uniformity of temperature throughout the year. This is well illustrated in Table I., compiled from information collected by the United States Weather Bureau. Among the elements which determine this uniformity may be mentioned the direct heat received from the sun, the proximity of the two oceans, the fact that the winds blow across the country almost unobstructed by hills or jungle, and the influence of the excessive volume of aqueous vapour held in suspension in the atmosphere. Under the tropical sun the evaporation from the oceans is abnormally rapid, and consequently the ill-effects of the high temperature are accentuated by a humidity extremely debilitating to those bred in, or accustomed to, a temperate climate. Thus, quite irrespectively of endemic diseases and the abominable sanitary conditions which have heretofore prevailed, not only in the small native settlements, but also in the cities of Panama and Colon, the Isthmian climate has physiological effects demanding unceasing vigilance on the part of those subjected to it.

TABLE I.—*The Climate of the Isthmus of Panama compared with that of other Localities.*

| Localities. | Approximate latitude. | Years of observation. | Average temperature. | | | | Maximum recorded. |
|---|---|---|---|---|---|---|---|
| | | | Annual. | Hottest month. | Coldest month. | Difference. | |
| | ° | | °F. | °F. | °F. | °F. | °F. |
| Isthmus of Panama ... | 9 | 26 | 79·7 | 81·0 | 78·3 | 2·7 | 99 |
| Washington, D.C. ... | 39 | 25 | 54·7 | 76·9 | 33·2 | 43·9 | 104 |
| New Orleans ... ... ... | 30 | 25 | 68·8 | 82·4 | 53·3 | 29·1 | 99 |
| Key West ... ... ... | 25 | 21 | 77·5 | 84·4 | 70·5 | 13·9 | — |
| Wadi Halfa ... ... ... | 23 | — | 80·0 | 94·6 | 64·0 | 30·6 | 119 |
| Havana ... ... ... ... | 23 | 10 | 76·8 | 82·4 | 70·3 | 12·1 | 101 |
| San Juan, Porto Rico ... | 18 | 12 | 78·8 | 81·5 | 75·7 | 5·8 | 101 |
| Kingston, Jamaica ... | 18 | 10 | 78·1 | 81·1 | 74·6 | 6·5 | — |
| Barbados ... ... ... ... | 13 | 20 | 75·6 | 76·9 | 73·4 | 3·5 | — |
| Cayenne ... ... ... ... | 4 | 1 | 79·7 | 82·0 | 77·1 | 4·9 | — |
| Manila ... ... ... ... | 15 | 17 | 80·0 | 84·0 | 77·0 | 7·0 | 100 |

Since the period of the Spanish conquest many unprofitable attempts have been made to colonise the country, but the only foreigners who have been able to withstand the climate with any measure of success have been people of Iberian extraction inured from their birth to a tropical environment, the Caribbean negroes employed by the French canal companies who have remained in the Isthmus, and a few Chinamen who have become permanent residents. These races have become so strangely mingled that it is often possible to trace in the face of a single individual the features or racial characteristics of the three peoples, plus those of the native Indian.

Near the sea and along the greater part of the line of the projected canal, much of the land is low-lying swamp, the washings of the soil, full of vegetable remains, brought down by the rivers in their flood. For miles round the country reeks with exhalations from decomposing organic matter, and the deleterious effects of these emanations, considered not only as agencies of specific diseases but as unwholesome gases, are evident on all sides. All the physiological consequences of life in the tropics are here found in exaggerated forms. The abnormal moisture of the atmosphere lessens evaporation from the skin and lungs, and this condition, in alliance with the continuous heat, readily induces languor, loss of appetite, depression of spirits and dulness of the entire nervous system, with consequent reduction of the pulse-rate, decrease in respiratory action, poverty of the blood, softness of the tissues, disorders of the kidney, stomach, and intestines, and a tendency towards congestion of the liver and spleen. Fevers—malarial, bilious, and congestive—are responsible for a large proportion, possibly four-fifths, of the sickness incidental to the climate. Foreigners seldom, if ever, acquire the same comparative immunity from local diseases as is enjoyed by the natives; they are always subject to febrile disorders, and in the intervals between the attacks suffer from the depressing and debilitating symptoms already described. The most trying period is probably September and the two following months, during which dysentery is common and frequently accompanied by a type of bilious fever closely approaching, in malignity and fatality, the much-dreaded "yellow Jack."

Nowhere in the world is the close affinity between marshy districts and certain diseases more clearly demonstrated; nor can it be denied, after the experience gained in the construction of the Panama railroad, and especially in connexion with the excavation of the canal traversing the same region, that the morbific effects of marsh miasmata are largely increased by the disturbance of the surface soil and, on the other hand, may be considerably lessened as the excavators reach strata more free from organic matter in decomposition. The extent to which miasmata may spread over land is a complicated and not always easily determined question, inasmuch as it appears largely to depend upon local conditions. For instance, the presence or removal of trees has a remarkable effect in intercepting or diffusing the noxious gases, and often, particularly in Italy, it has been found that the destruction of a belt of wood adjacent to marshy land has been instrumental in introducing fever to a heretofore healthy district. No such effect, however, appears to have followed the clearings along or near the canal route in the Isthmus of Panama. The first stages of the work were executed in an atmosphere begirt by luxuriant vegetation, gradually reduced as the operations extended, until at last a passage was created for an unrestricted passage of air, and as this work progressed the general hygienic conditions appear to have improved.

Still it is as certain to-day as ever it was that malarial fevers and other similar diseases are continually present in the Isthmus in aggravated forms, and that, pending the completion of the sanitary reforms already in progress or contemplated in and about the cities of Panama and Colon, yellow fever must always be considered endemic in the Canal Zone. It is fortunate for the canal enterprise, whether regarded from the standpoint of the engineer or the economist, that it should now be under the control of an administration which has had extensive and recent experience in dealing with kindred climatic and health problems. The scourge of yellow fever may, it is believed, be eliminated by the methods which proved so successful at Havana; and although, it must be confessed, certain disclosures concerning the management of affairs during the past 12 months are not altogether encouraging, we may, I think, anticipate with considerable confidence an early realisation of this hope. The effective control of malaria is by far the graver problem, especially during the period of canal construction; and it is quite within the bounds of probability that, should the measures adopted by the American authorities prove inoperative or be at any time relaxed, the mortality among the labourers on the Isthmus will be no less serious than it was in the days of the de Lesseps Company. No one, it may be noted, has expressed himself more emphatically on this point than Dr. Gorgas.

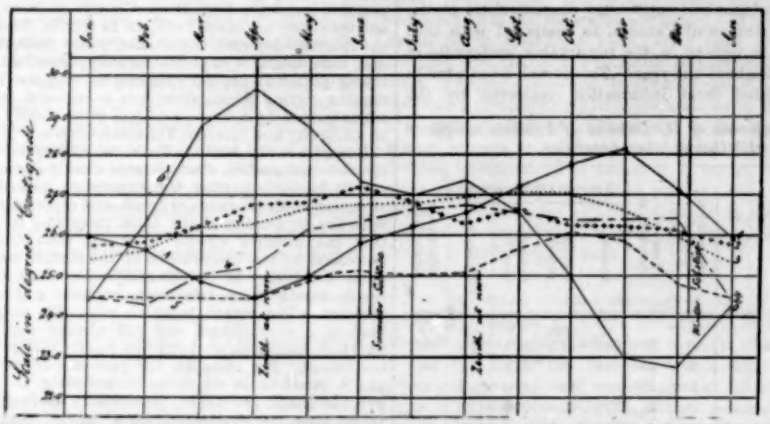
Thanks to the valuable records of observations and other data collected during the past 20 years under the auspices of the two French canal companies and the United States Government, it is possible to convey in comparatively brief space a very definite idea of the climate of the Canal Zone and its influences upon the progress of canal construction. As foremost in the work of summarising these details and analysing them in such manner as to develop in the most convenient and convincing form the information which they convey, prominent mention should be made of General Henry L. Abbot, one of the most eminent of American hydraulic engineers and long associated with Panama Canal studies. To the latter I am much indebted for several of the figures and tables included in the present portion of this paper.

The low latitude of the Isthmus of Panama brings the sun at the zenith twice during the year, once at noon on

[1] No. I. was published in THE LANCET of June 3rd, 1905, p. 1530.

April 13th when it is journeying northward to reach its summer solstice on June 21st, and again on August 29th, when returning towards its winter solstice, which it reaches on Dec. 21st. The direct heat transmitted at these altitudes is then proportional to the sines of 90°, 75° 41′, and 57° 24′, or to the numbers 1·00, 0·97, and 0·84 for the zenith, the summer solstice, and the winter solstice respectively. It should, however, be noted, first, that the length of day, and hence the duration of solar radiation, attains its maximum in June and its minimum in December, and that this element consequently tends to reduce the natural fall of temperature during the sun's northward journey and, on the other hand, to augment it during the approach to its southern limit; and, secondly, that the temperature of the air as registered by the thermometer is affected by the modifying influence of the aqueous vapour held in suspension, which by day tends largely to reduce, and by night largely to increase, the temperature of the air at the earth's surface.

FIG. 3.



Absolute influence of different factors upon the monthly temperatures on the Isthmus of Panama. (1) Influence of the humidity of the air during the night time; (2) of the observed temperature; (3) of the computed temperature; (4) of the temperature of the Caribbean Sea; (5) of the temperature of the Bay of Panama; and (6) of humidity and sunshine by day.

Another factor to be considered is the influence of the two oceans bordering the Isthmus. In this connexion it may be of interest to remark that daily observations during several years of the temperature of the water at Colon and at Naos, Bay of Panama, have resulted in the following data:—Colon: annual average temperature, 79·3° F.; maximum, 81·9°, occurring in September; and minimum, 75·8°, in February. Naos: annual average, 76·1° F.; maximum, 80·0° (October); and minimum, 67·8° (February). The general movements of the atmosphere, which in large degree determine the influence of oceans upon neighbouring shore climates, are here governed by the locus of the ascending current of warm air following the sun in its travels north and south of the solstices. It must also be remembered that, while the great equatorial current of warm water entering the Caribbean Sea largely modifies the direct action of the sun upon its temperature, the Pacific on the other side, in the absence of such current, becomes a great natural thermometer to register the direct heat received, but with a retardation of about two months, both in maximum and minimum, representing the time required to influence the temperature of so large a volume of water.

The curves in Fig. 3 are an attempt to combine in diagrammatic and comparative form the several elements to which reference has been made. If the direct action of the sun as modified by humidity were alone considered there would be a range of monthly mean temperature of about 3·75° between the sun's first zenith transit in April and the middle of December. This, however, is reduced by the powerful joint influences of varying humidity, varying length of night, and of the two oceans to an observed range of 2·51° between June and January and a computed range of 1·64° between the sun's August transit of the zenith and January. The curves indicating the influence of the oceans show that the Atlantic is the more powerful, and this conclusion is confirmed by the remarkable identity of temperatures prevailing on the isthmus and along the northern coast of South America. But for the influence of the Atlantic the northern winds of the first four months of the year would sensibly aid the Pacific, then relatively cold, in moderating the temperature at Panama.

An analysis of the records of diurnal variations of temperature during a series of years, which have been made at a number of posts in the Isthmus, demonstrates that charac-

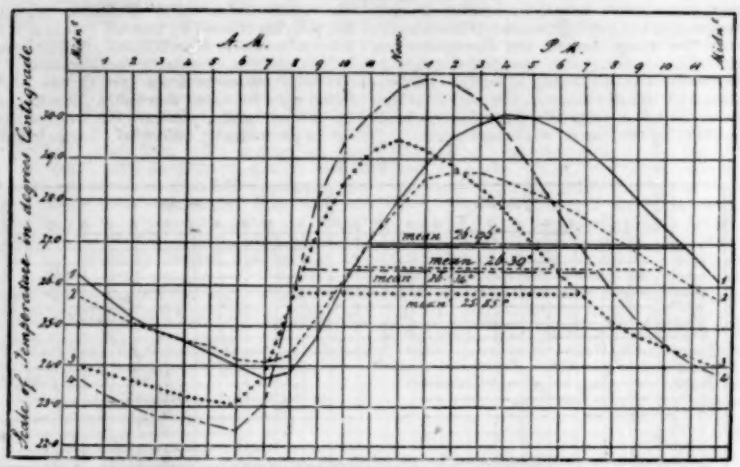
TABLE II.—*Hourly Variations in Temperature, in Centigrade Degrees.*

| Hour. | Dry season, January–April. | | | | Rainy season, May–December. | | | |
|---|---|---|---|---|---|---|---|---|
| | Colon. | Alhajuela. | Panama. | La Boca. | Colon. | Alhajuela. | Panama. | La Boca. |
| 1 A.M. ... ... ... | 25·28 | 23·37 | 25·18 | 25·76 | 24·65 | 23·82 | 25·80 | 25·38 |
| 2 A.M. ... ... ... | 25·22 | 23·08 | 24·97 | 25·33 | 24·40 | 23·62 | 25·70 | 25·10 |
| 3 A.M. ... ... ... | 25·08 | 22·80 | 24·75 | 24·94 | 24·20 | 23·43 | 25·56 | 24·83 |
| 4 A.M. ... ... ... | 25·02 | 22·58 | 24·59 | 24·60 | 24·00 | 23·25 | 25·45 | 24·59 |
| 5 A.M. ... ... ... | 24·82 | 22·37 | 24·45 | 24·30 | 23·88 | 23·13 | 25·37 | 24·39 |
| 6 A.M. ... ... ... | 24·75 | 22·25 | 24·31 | 24·02 | 23·85 | 23·07 | 25·26 | 24·16 |
| 7 A.M. ... ... ... | 25·00 | 23·04 | 24·27 | 23·71 | 24·20 | 23·78 | 25·29 | 24·07 |
| 8 A.M. ... ... ... | 25·70 | 25·58 | 24·66 | 23·82 | 25·25 | 25·35 | 25·62 | 24·37 |
| 9 A.M. ... ... ... | 28·62 | 28·05 | 25·85 | 24·75 | 26·58 | 27·29 | 26·20 | 25·21 |
| 10 A.M. ... ... ... | 27·47 | 29·43 | 27·05 | 26·00 | 27·48 | 28·56 | 26·78 | 26·23 |
| 11 A.M. ... ... ... | 27·98 | 30·20 | 27·88 | 27·23 | 28·05 | 29·28 | 27·24 | 27·11 |
| Noon ... ... ... | 28·22 | 30·64 | 28·32 | 28·08 | 28·40 | 29·54 | 27·40 | 27·32 |
| 1 P.M. ... ... ... | 28·10 | 30·85 | 28·56 | 28·87 | 28·40 | 29·34 | 27·48 | 28·43 |
| 2 P.M. ... ... ... | 27·85 | 30·75 | 28·82 | 29·50 | 28·32 | 28·90 | 29·56 | 28·90 |
| 3 P.M. ... ... ... | 27·68 | 30·40 | 29·22 | 29·91 | 27·82 | 28·35 | 27·50 | 28·66 |
| 4 P.M. ... ... ... | 27·42 | 29·81 | 29·28 | 30·05 | 27·52 | 27·78 | 27·40 | 28·48 |
| 5 P.M. ... ... ... | 26·86 | 28·83 | 28·97 | 30·00 | 26·98 | 27·09 | 27·18 | 28·22 |
| 6 P.M. ... ... ... | 26·35 | 27·71 | 28·45 | 29·77 | 26·25 | 26·29 | 26·96 | 27·92 |
| 7 P.M. ... ... ... | 26·02 | 26·67 | 27·67 | 29·24 | 25·62 | 25·70 | 26·72 | 27·57 |
| 8 P.M. ... ... ... | 25·98 | 25·90 | 26·95 | 28·71 | 25·78 | 25·27 | 26·52 | 27·22 |
| 9 P.M. ... ... ... | 25·75 | 25·21 | 26·45 | 28·02 | 25·40 | 24·88 | 26·36 | 26·79 |
| 10 P.M. ... ... ... | 25·70 | 24·65 | 26·02 | 27·41 | 25·20 | 24·56 | 26·22 | 26·41 |
| 11 P.M. ... ... ... | 25·60 | 24·18 | 25·65 | 26·77 | 25·05 | 24·28 | 26·06 | 26·05 |
| Midnight ... ... | 25·50 | 23·78 | 25·38 | 26·29 | 24·85 | 23·99 | 25·92 | 25·72 |
| Mean ... ... | 26·26 | 26·34 | 26·57 | 26·96 | 25·93 | 25·85 | 26·40 | 26·39 |
| Maximum ... | 30·60 | 34·50 | 31·60 | 35·20 | 32·20 | 35·90 | 32·10 | 32·90 |
| Minimum ... | 20·00 | 18·00 | 22·00 | 22·00 | 20·60 | 18·90 | 23·80 | 20·00 |

teristic differences exist only between the Caribbean coast, the interior, and the Pacific coast, and between the four dry months (January, February, March, and April) and the remaining eight months, when heavy rains prevail. These differences, recorded in Centigrade degrees, will be found exhibited in Table II. For greater convenience in later reference the Fahrenheit equivalents are given. It should be noted that these records—compiled from observations by the United States Weather Bureau—refer to the time of the seventy-fifth meridian (Bogota), and that consequently 19 minutes should be subtracted before comparison with observations based upon local time. This has been done in Fig. 4, which illustrates Table II.

chain adjacent to the western littorals of North and South America and its altitude is but 150 feet above the sea. The temperature here at sunrise in the dry season is about 72° F., rising rapidly it reaches about 81° at 1 P.M., and then gradually falls to the minimum at sunset. During the rainy season, on the other hand, the temperature at sunrise is about 74° F., reaches a maximum of about 85° at noon, and then falls to about 80° at sunset and to the minimum at sunrise. At La Boca, on the Bay of Panama, the minimum temperature occurs later, at about an hour after sunrise, when it is 75° in both the dry and rainy seasons. The maximum, 86°, in the dry season is reached at 4 P.M. and 84° in the rainy season, at about 2.30 P.M. The fall is more

FIG. 4.




Observed diurnal variations of temperature (local time) in the dry and wet seasons. (1) La Boca, dry season; (2) La Boca, rainy season; (3) Alhajuela, rainy season; (4) Alhajuela, dry season.

It will be seen that, as was shown in the case of the monthly averages, the changes of temperature from hour to hour and day to day are subject to far less variation on the Isthmus than in regions more remote from the equator. It should be remembered, however, that all compilations such as the above are based upon observations made where the thermometers were not exposed to direct solar radiation, and that, consequently, labourers exposed to the sun would experience much higher temperatures. As Alhajuela is about midway between the oceans it has been selected as a locality well suited to represent the climate of the interior of the isthmus. It is situated in the valley of the Upper Chagres, among the hills which here represent the mountain

gradual than in the centre of the isthmus, the mercury receding but little from the maximum point until after sunset. In short, the changes of temperature on the Pacific coast are less decided and later than in the interior, though the daily average is about the same.

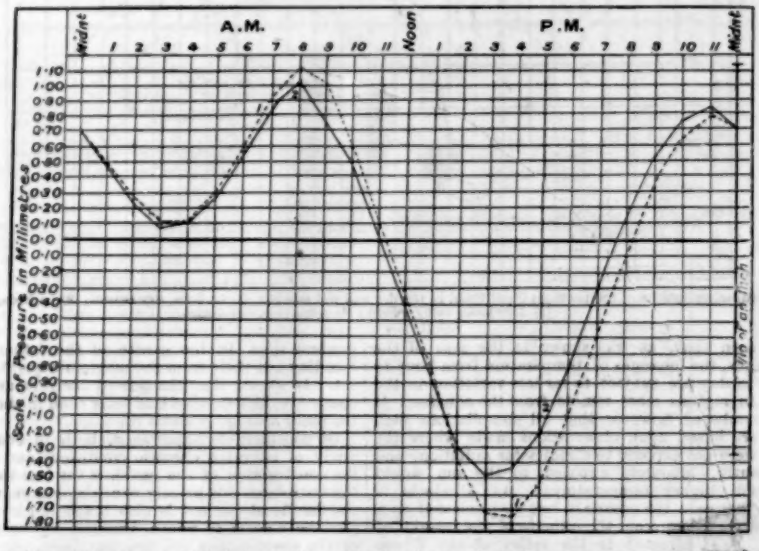
Of considerable importance, both in connexion with the study of isthmian climatic conditions and as bearing upon the construction of the canal, is the fact that the rainfall on the Caribbean side greatly exceeds that in the interior or on the Pacific slope, and is also much larger than that on the Caribbean coast of South America. Thus, during the period of the observations referred to above, the annual average rainfall was: at Colon, 130 inches; at Alhajuela, 103·8

TABLE III.—RAINFALL IN INCHES AT VARIOUS POINTS ON OR ADJACENT TO THE PANAMA CANAL LINE.

| Month. | Atlantic coast. | | | Pacific coast. | | | | | Interior stations. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Colon. | Bohio. | Mean. | Panama. | Naos Island, Panama Bay. | Taboga Island, Panama Bay. | La Boca. | Mean. | Alhajuela. | Gamboa. | Gorgona. | Obispo. | Culebra. | Mean. |
| January ... ... ... ... | 3·89 | 9·34 | 6·62 | 0·70 | 0·50 | 0·17 | 1·97 | 0·83 | 0·75 | 2·41 | 3·28 | 1·76 | 0·86 | 1·81 |
| February ... ... ... ... | 1·44 | 1·50 | 1·47 | 0·73 | 0·08 | 0·00 | 0·03 | 0·21 | 0·16 | 0·68 | 0·60 | 0·42 | 0·23 | 0·42 |
| March ... ... ... ... | 1·58 | 2·29 | 1·94 | 1·56 | 0·35 | 0·00 | 1·55 | 0·86 | 0·75 | 0·88 | 1·17 | 0·83 | 0·28 | 0·78 |
| April ... ... ... ... | 4·32 | 4·94 | 4·63 | 2·84 | 1·71 | 0·81 | 3·72 | 2·27 | 4·09 | 3·21 | 2·37 | 2·69 | 1·95 | 2·86 |
| May ... ... ... ... ... | 12·04 | 13·90 | 12·97 | 7·58 | 4·77 | 6·34 | 9·81 | 7·12 | 13·03 | 10·88 | 11·57 | 10·95 | 12·00 | 11·69 |
| June... ... ... ... ... | 13·50 | 13·31 | 13·40 | 7·86 | 5·49 | 8·16 | 8·23 | 7·44 | 12·95 | 9·53 | 9·30 | 11·69 | 10·23 | 10·74 |
| July ... ... ... ... ... | 16·70 | 18·13 | 17·42 | 7·58 | 4·29 | 6·15 | 10·17 | 7·05 | 13·03 | 10·09 | 13·26 | 8·83 | 7·57 | 10·56 |
| August ... ... ... ... | 15·13 | 20·15 | 17·62 | 6·81 | 4·78 | 7·12 | 5·39 | 6·03 | 12·01 | 12·86 | 14·22 | 9·78 | 8·86 | 11·55 |
| September ... ... ... | 12·68 | 16·73 | 14·70 | 7·48 | 7·42 | 7·33 | 7·31 | 7·28 | 12·95 | 10·94 | 13·53 | 12·20 | 9·13 | 11·75 |
| October ... ... ... ... | 14·15 | 20·44 | 17·30 | 9·49 | 6·64 | 7·32 | 11·12 | 8·64 | 14·64 | 13·03 | 11·25 | 10·45 | 11·71 | 12·22 |
| November ... ... ... | 20·69 | 20·15 | 20·42 | 11·57 | 6·26 | 4·05 | 10·43 | 8·08 | 16·07 | 12·25 | 10·38 | 10·61 | 11·26 | 12·11 |
| December ... ... ... | 12·14 | 9·25 | 10·70 | 2·75 | 3·21 | 6·56 | 4·78 | 4·33 | 3·11 | 6·62 | 5·48 | 9·05 | 11·19 | 7·09 |
| Total ... ... ... ... | 128·26 | 150·48 | 139·39 | 66·78 | 45·50 | 54·01 | 74·51 | 60·24 | 103·54 | 93·38 | 96·41 | 89·26 | 85·27 | 93·58 |

inches; at La Boca, 74·5 inches; at Barbados, 39·6 inches; at Trinidad, 56·5 inches; and at Curaçoa, but 16·1 inches. It is evident from Table III. that in each section of the isthmus there is a fairly well-defined dry season, that this comparative exemption from rain is more characteristic of the interior and Pacific coast than it is of the region adjacent to the Caribbean Sea, and that (after allowing for the so-called dry seasons) there may yet be expected in each of the sections an annual rainfall of respectively 85 to 104, 45 to 75, and 128 to 150 inches. High as these figures are they compare most favourably with the annual records of rainfall, averaging nearly 300 inches, at Greytown, the proposed Atlantic terminal of the once much-discussed Nicaragua Canal. It will clearly be no small advantage to the engineers of the Colon-Panama waterway to be able to depend upon several consecutive months of relative drought in which to lay cement and to prosecute other difficult work. Frequently during the rainy season the downpours are remarkable, even for the tropics, and a few hours suffice to transform trickling streams into foaming torrents. Particularly is this the case with the Rio Chagres, the bed of which is followed for about 23 miles, from Obispo to the low lands on the Caribbean coast, by the line of the future canal.

FIG. 5.




Diurnal curve of barometric pressure at Alhajuela. (1) Mean of the four dry months for four years, mean pressure, 759·99 millimetres (2) mean of eight rainy months for four years, mean pressure, 759·72 millimetres.

Recent records accord with earlier data in demonstrating the remarkable uniformity of barometric pressure throughout the Isthmus. For example, the extreme range at Alhajuela during four years has been only 0·42 inch, the maximum reading, 30·99 inches, being noted in February, 1900, and the minimum, 29·67 inches, in November, 1902. The horary variations may best be studied in the form of departures from the mean reading, which enable a direct comparison to be made between the curves in the dry and rainy seasons, as shown in Fig. 5.

Although considerable mortality attended the operations of the first canal company it never reached the dimensions conceived by popular imagination. After the *débâcle* of 1888 and the revelations of the liquidation period no charge which could be brought against the de Lesseps' administration was too serious for belief. This was especially the case as regards its treatment of imported labour and the shortcomings of its health department. As a matter of fact, corrupt and inefficient as was the de Lesseps' *régime* in all that related to finance and engineering, the gravest accusations which could with justice be urged in connexion with its medical and sanitary services were that each was lavishly extravagant, that the expenditure involved was absurdly disproportionate to the results achieved, and that its returns as given to the public could seldom be relied upon. One consequence of the not unwarranted prejudice provoked by the scandalous disclosures which followed the failure of the first determined attempt to pierce the Central American isthmus may be found to-day in current ideas respecting the mortality and sickness involved in the endeavour. There is little doubt that in the majority of instances people have debited to the de Lesseps company events of half a century earlier, when the Panama railroad was in course of construction and the most elementary principles of medicine and sanitation, as we know them, were flagrantly defied both as regards white and coloured labour.

The health statistics, if such were ever compiled, during the building of the Panama railroad have never been made public. Several contemporary writers, however, have left us their impressions and among these mention may be made of Dr. J. A. Liddell. This authority has recorded, in a paper in the *New York Journal of Medicine*, vol. viii., 1852, that of 382 patients treated by himself during a year's service on the Isthmus no fewer than 250 suffered from remittent fever with bilious, gastric, or enteric complications. He also pointed out that labourers from the United States could not be relied upon for three successive months; before the end of the second month one-half the force would be on the sick list or permanently enfeebled. Little imagination is required to picture the appalling mortality which must have attended the enterprise, for at that time it was not understood—or, if understood, the lesson was ignored—that natives of the temperate zones cannot with any measure of safety perform arduous manual labour under exposure to a tropical sun, and that the most that can be expected from the white man in such a climate is the performance of duties of supervision. Even in the early years of the French operations on the canal these principles were occasionally neglected, with, of course, serious consequences. There is also little doubt that much of the mortality of this period might have been prevented by a larger provision of drainage works, a more rigid enforcement of sanitary regulations, and the exclusion of employés, European as well as coloured labourers, whose mode of life and constitutions unfitted them for work in the tropics.

There still exists much diversity of opinion as to the amount of confidence which can be placed in the figures relating to health conditions which have from time to time been circulated by, or on behalf of, the French canal companies. The latter were obviously prejudiced in favour of returns calculated to cheer their shareholders and employés, and at the same time to create an impression in the outside world that affairs on the Isthmus were subject to continuous amelioration. Consequently it is not very surprising that the official statistics fail to show that high mortality from

diseases incident to the climate which has been suggested by travellers and independent observers. There is no doubt that during the early years of the de Lesseps' *régime* gross sanitary abuses prevailed and that the system of charging the contractors for the care of their men when in hospital was the cause of much mortality being unreported and of labourers being kept at work when they should have been under medical care. Of the state of affairs when the canal was commenced we may learn much from a paper contributed to the *Boston Medical and Surgical Journal*, vol. cvi., No. 16, 1882, by Dr. A. C. Heffenger. This authority declared that it was impossible for him to obtain access to the records of the company and that all his investigations pointed to the conclusion that the reports issued by the latter were garbled and incorrect. He states, indeed, on the authority of a physician resident in Panama, that during the first 11 months of preliminary work on the canal, when there cannot have been a very large force on the Isthmus, no fewer than 65 Europeans and 800 labourers died from disease. Dr. H. Davidson, in his "Geographical Pathology," published in 1892, remarks that, with a force of 7000 men, the Compagnie universelle reckoned to have about 1000 men always in hospital; and from other sources we learn that, in March and April, 1882, in Panama and its vicinity alone, there died 37 out of fewer than 100 engineers, that "there was not a single French engineer who had been able to attend to the work beyond one year and a half, although the contract called for two," and that during September, 1884, the company buried 654 officers and men.

In face of these statements and of others of like tendency, to which it is unnecessary to refer in other than general terms, I cannot ask readers to accept as other than approximate many of the figures included in Table IV. At the same time I wish it clearly to be understood that this reservation in no way reflects upon the good faith of the distinguished authority to whose labours I am indebted for these statistics. Dr. Lacroisade was for many years chief medical director of the well-equipped hospital at Ancon erected by the de Lesseps Company; no one has fuller knowledge than he of Isthmian conditions, and his views on the subject are entitled to careful consideration. It is of undoubted interest to note in connexion with this table that whereas the percentages of sickness and mortality for general ailments remained comparatively unchanged during the successive epochs, they fell in marked degree in later years for diseases incident to the climate. Dr. Lacroisade cannot, I think, be wrong in attributing this improvement to the better accommodation provided for the labourers, to the stricter surveillance inaugurated by the Compagnie nouvelle, to a gradual re-clearing of the route, and especially to the fact that the excavations in recent years have reached a level below the poisonous emanations of decaying organic matter.

TABLE IV.—*Official Health Statistics of the Panama Canal.*

| Years. | Average effective force employed. | Percentage of disease. | | | Percentage of mortality. | | |
|---|---|---|---|---|---|---|---|
| | | Diseases of Europe. | Diseases due to climate. | Total. | Diseases of Europe. | Diseases due to climate. | Total. |
| Compagnie universelle du Canal interocéanic de Panama (de Lesseps Company)— | | | | | | | |
| 1881 ... ... ... | 928 | 21·02 | 42·02 | 63·04 | 1·94 | 4·74 | 6·68 |
| 1882 ... ... ... | 1,910 | 18·85 | 47·64 | 66·49 | 2·21 | 4·39 | 6·60 |
| 1883 ... ... ... | 6,237 | 23·24 | 42·62 | 65·86 | 2·20 | 4·46 | 6·66 |
| 1884 ... ... ... | 17,615 | 27·58 | 36·95 | 64·57 | 2·58 | 4·08 | 6·66 |
| 1885 ... ... ... | 15,215 | 11·93 | 49·14 | 61·07 | 1·73 | 3·79 | 5·52 |
| 1886 ... ... ... | 14,935 | 14·01 | 43·88 | 57·89 | 1·67 | 3·43 | 5·10 |
| 1887 ... ... ... | 16,217 | 21·82 | 39·25 | 61·07 | 2·22 | 3·99 | 6·21 |
| 1888 ... ... ... | 13,725 | 12·17 | 40·46 | 52·63 | 1·81 | 2·54 | 4·35 |
| Mean ... ... | 10,854 | 18·63 | 42·75 | 61·58 | 2·05 | 3·92 | 5·97 |
| Liquidation period: | | | | | | | |
| 1889 ... ... ... | 1,826 | — | — | — | — | — | — |
| 1890-94 ... ... | About 800 | — | — | — | — | — | — |
| Mean ... ... | 971 | — | — | 49·68 | — | — | 2·88 |
| Campagnie nouvelle du Canal de Panama— | | | | | | | |
| 1895 ... ... ... | 1,225 | — | — | 49·26 | 2·05 | 0·89 | 2·94 |
| 1896 ... ... ... | 3,715 | — | — | 39·91 | 2·08 | 0·84 | 2·92 |
| 1897 ... ... ... | 3,980 | — | — | 51·85 | 1·99 | 1·00 | 2·99 |
| 1898 ... ... ... | 3,400 | 28·26 | 13·65 | 41·91 | 1·76 | 0·27 | 2·03 |
| 1899 ... ... ... | 2,500 | 19·76 | 5·84 | 25·60 | 2·24 | 0·12 | 2·36 |
| 1900 ... ... ... | 2,000 | 17·05 | 8·50 | 25·55 | 3·00 | 0·25 | 3·25 |
| 1901 ... ... ... | 2,000 | 18·60 | 6·85 | 25·45 | 1·55 | 0·20 | 1·75 |
| Mean ... ... | 2,703 | 20·92 | 8·71 | 37·17 | 2·10 | 0·51 | 2·61 |

Table IV., it may be noted that the increased percentages in 1887 are attributed to epidemics of small-pox and beri-beri, which were suppressed by vaccination and the discharge of Chinese and African labourers. In 1898 no yellow fever or other epidemic disease visited the Isthmus, and despite the acknowledged large percentages of sickness and mortality observable in the table the general health of the canal employés was reported as satisfactory. Between May and the middle of December in the following year there were about 139 cases of yellow fever in the city of Panama, the victims being chiefly foreign sailors and Colombian soldiers from the mainland. A Frenchman, recently arrived and employed on the harbour works at La Boca, contracted the disease but recovered and with this exception no sickness of an epidemic form was reported among the Canal Company's employés. Outside the canal region, however, in June and July, there was a sharp outbreak of influenza and in September an epidemic of measles caused numerous deaths. In March, 1900, yellow fever reappeared in Panama and between that date and Sept. 10th 138 cases were reported in the city chiefly among the Colombian soldiers. One employé of the Canal Company was also attacked but recovered, and with this exception, according to the reports, there was no sickness of an epidemic form, the somewhat higher death-rate being attributed to chronic diseases of a general type. In 1901, also, no epidemic appeared among the canal force; to the Isthmus, however, in January yellow fever was again imported by a priest and sister of charity coming from Buenaventura. Altogether there were four cases, of which three proved fatal. There was a serious outbreak of small-pox in April in the city of Panama and this disease continued to rage for more than a year; thanks, however, to the vigilance of the Canal Company in the matter of vaccination its employés suffered but little.

*(To be continued.)*

Some explanations seem desirable to account for certain of the fluctuations observable in the above table. Considerations of space forbid more than cursory mention of these expository circumstances, the reader being referred for a fuller hygienic history of the period to the valuable report issued in 1899 of the commission constituted under Article 75 of the statute incorporating the New Panama Canal Company and to a letter by Dr. Lacroisade published in the *Medical News*, vol. lxxx., p. 707, New York, 1902. It will, of course, be understood that all the figures given below are quoted from the official records and, consequently, not above suspicion. For example, I cannot but think that the number of recorded deaths during the years 1881–88—namely, 4987, of which 1018 were attributed to yellow fever—represents very imperfectly the actual condition of affairs and the same must be said of the statements that of the 254 engineers and other officials sent out from France from January, 1881, to September, 1883, but 40 died and that of 89 serving under the Compagnie nouvelle in an equivalent period only three fell victims to the climate.

Reverting more particularly to

H.R.H. the Princess Louise, Duchess of Argyll, has signified her intention of being present at the Café Chantant which is to take place at the Hotel Cecil, Strand, London, on Wednesday afternoon, July 5th, in aid of the Regimental Homes and Benefits Agency.

## ANCIENT EGYPTIAN BURIAL RITES.

IN a leading article in THE LANCET some years ago upon the Ethnological Significance of Ancient Egyptian Burial Rites[1] a somewhat full description was furnished of the early prehistoric interments of Egypt, from which we find that the skeleton was completely broken up and the bones were arranged in a symmetrical order in a cavity in the sand, which in those primitive times served as a sepulchre. It was considered that these kind of burials were those of a race different from that of the so-called "ancient Egyptians" and that all historical traces of the burial practices of what may be termed these proto-Egyptians had been lost, though some very obscure texts in the oldest magic funerary literature of the Egyptians were thought to refer to the matter. M. Moret, however, in a recent work upon the "Daily Divine Worship in the Egyptian Temples" in referring to several chapters, some of them accompanied by illustrative vignettes, inscribed upon tombs, edifices, or papyri, proves that a whole series of ritualistic incantations allude to, and indeed derive their origin from, these ancient funerary practices. The proof of the first fact occurs very convincingly in Chapters 20 and 21 of the "Ritual of Ammon," preserved upon a papyrus now at Berlin, and also upon the walls of some temples, a work that has only recently been translated. It speaks of the presentation, as an act of worship to the god, of perfume and oil on purpose to produce the orderly rearrangement of his bones and members, actually asserting that his skeleton will be put in order. At the same time other passages of the ritual speak of the deity as a mummy, thus indicating that in the diurnal temple worship, for this papyrus is the rubric for this official cult, not only was the god assimilated to a mummified hero, but that he also had to be adored by acts or incantations necessitated by recollections of the archaic methods of Egyptian burials previously to mummification being invented or introduced by some other people. These ancient rituals therefore afford a mingling of the practices of the alien races or of the earlier and the later ones of the same people.

The skeletons discovered by Professor Petrie and M. Amelineau and M. de Morgan upon sites of the earliest Egyptian places of sepulture had been effectually disarticulated and carefully rearranged; and the fact that the ritual for the worship of the gods, in many cases deified ancestors and chiefs, contains texts speaking of the replacing, or rather the readjustment, of the bones of the skeleton to their original serial order distinctly declares a recollection of an epoch in which the skeleton was broken up and arranged quite otherwise than in life. The idea that the reconstruction of the dismembered body was a necessity in order that the spirit might again have a fit tenement to occupy runs through the rubrics required to be recited at religious fêtes through almost all Egyptian history; though to what extent the many generations of priests who recited, and of people who read and heard them, comprehended their origin and significance we do not know, because, so far as we are aware, for thousands of years mummifying had been considered the only proper method for disposal of the cadaver. The early dynasty "Pyramid Texts" say: "Maut gives thee thy head, she makes thee present of thy bones, she assembles thy flesh, and brings to you your heart, placing it in thy breast." It was Osiris who first had been broken up according to the myths. Inscriptions state that two goddesses took care of his head and nape. However, most Osirian myths, such as "The Book of the Rites of Osiris," published by M. Paul Pierret, refer more to the regathering and uniting in their natural order of his limbs clothed with the flesh. But some depict first the reassemblage of his bones like so many phrases in the "Rituals of Ammon and Maut" and the "Pyramid Texts," such as these: "For one to offer to the God his skull and his bones," one establishes his head upon his bones "before Seb," or "We offer to thee thy bones, thou hast taken thy head before Seb."

Enough has been said to show convincingly, as suggested in the previous account of the subject, that many sacred rites are allusions to the archaic practice of removing the flesh, disarticulating the bones, and packing them together as found in the very primitive burials. This enables anthropologists to say with some certainty which ritual formulæ are the most ancient. M. Lefébure in "Le Mythe Osirien" and M. Pierret in his "Hymn to Ammon" show us that both the Horus and the Ammon stories contained references to disarticulation of the skeleton of these heroes, although when they translated these texts no one had the remotest idea that such practices ever prevailed in the Nile valley. Mingled with these writings, however, are always others which dwell much more impressively upon the necessity of the body ever being preserved intact, even the flesh (or certain constituents thereof) being rendered indestructible by mummification; of course, the removal of the viscera, to prevent putrefaction, as part of the mummifying process is invariably taken for granted; and so the incantations professing to revivify the corpse of the person or deity in the next world contain recitations and acts replacing them in the cadaver.

That originally the history of Osiris stated that his skeleton was disarticulated, though later this was forgotten and the faded memory diminished into the myth that only his body was cut up and its members scattered, is evident by the text of the pyramid of Pharaoh Pepi II. and Chapter 44 of the "Ritual of Ammon" and 3 of the "Ritual of Maut": "Horus is come full of his 'humeurs' to embrace his father Osiris, he has found his place in the country of the Gazelles" [the sandy desert], "he arranges his bones, he reunites his members, he assembles [again] his flesh." The ritual references first occur in connexion with the offerings of ointments but are repeated in those of libations of pure water. "Thy head is offered to thee, thy bones also and thy head [skull] established on them." These are intermingled with later rites in more recent religious works, such as the "Book of Funerals" translated by Signor Schiarparelli or the "Ritual of Embalmment" edited by Professor Maspero. The chief concept underlying them seems to be that of the original sacrifice by death of the deity, changed later into a sacrifice of victims to the god symbolical of his own suffering. Nowhere, however, is there any trace of burning of the body, for in these myths incineration is not alluded to, though partial traces of this practice are visible in some of the most primitive interments.

It would seem as if Osiris was a deified chief of a race who mummified their dead and in war with more savage, and probably earlier, tribes who disarticulated the skeletons of their dead, was slain, captured, and his body subjected to the practices of his foes, only to be regathered together by his followers after some subsequent victory over their enemies. Later the story of the dispersal of his bones became attenuated into one of the scattering in the various provinces of portions of his body. The earliest funerary rituals contemporary with the dismemberment practices were incorporated with the later ones composed by the race who invented mummification, and as this later practice endured for thousands of years and the literature was frequently augmented during that period the passages agreeing with, or referring to, the later process are much the more numerous and, indeed, the meaning of those relating to the primitive practice was forgotten.

[1] THE LANCET, April 6th, 1901, p. 1025.

## INDIAN MEDICAL SERVICE.

### PRESENTATION OF PRIZES AT NETLEY.

THE following list shows the aggregate marks obtained by the lieutenants recently admitted into the Indian Medical Service at the Royal Army Medical College, London, and at Netley, and the prizes gained:—

| | Marks. | | Marks. |
|---|---|---|---|
| A. F. Hamilton ... ... | *3894 | M. R. C. MacWatters ... | 3413 |
| A. D. White ... ... ... | †3641 | W. H. Boalth ... ... ... | 3399 |
| M. F. Reany ... ... ... | ‡3504 | G. A. Soltau ... ... ... | 3387 |
| R. K. White ... ... ... | 3481 | W. H. Hamilton ... ... | 3386 |
| H. C. Buckley ... ... ... | 3451 | J. Cunningham ... ... | 3311 |
| N. M. Wilson ... ... ... | 3420 | H. Falk ... ... ... ... | 3296 |
| J. S. O'Neill ... ... ... | ‖3414 | C. J. Coppinger ... ... | 3280 |

* Marshall Webb medal and prize in hospital administration; second Montefiore prize in military surgery.
† Ranald Martin gold medal in military medicine.
‡ First Montefiore prize in military surgery.
‖ Maclean prize in clinical medicine.

A presentation of prizes took place on May 31st in the lecture theatre of the Royal Victoria Hospital, Netley. Surgeon-General A. M. Branfoot, C.I.E., I.M.S., President

of the Medical Board at the India Office, presided and was supported by Surgeon-General R. H. Quill, R.A.M.C., principal medical officer, and the staff of the hospital. The occasion derived a special interest from the circumstance that it marked the final closure of the Army Medical School at Netley.

Colonel K. MACLEOD, I.M.S. (retired), read a report of the work done during the session and referred to the extinction of the school in these words: "It is understood that this is the last occasion on which officers entering the Indian Medical Service will be sent to Netley for instruction. In these circumstances, and as the final closing of the Army Medical School at Netley coincides with the termination of my tenure of the office of professor of military medicine, I venture to offer a few remarks arising from the situation. On July 29th, 1902, His Excellency Field-Marshal Earl Roberts presided at the distribution of prizes at the end of the summer session which preceded the transfer of the school to London. On that occasion, which signalised the closure of the Army Medical School as originally constituted, I read a short report setting forth the history, objects, and work of the school. As that report was published at the time I need not now repeat what I then wrote. The school had been in existence for 42 years and had completed 84 sessions. 1687 officers of the British Medical Service, 1191 of the Indian Medical Service, and 213 of the Naval Medical Service had passed through Netley, giving a total of 3097. In addition over 300 senior officers had come to Netley for instruction. Since the year 1902 127 officers entering the Indian Medical Service have been sent to this hospital, after studying the subjects of hygiene, pathology, military surgery, and hospital administration in the Royal Army Medical College, London, for the purpose of undergoing instruction in tropical diseases, lunacy, and ambulance drill and obtaining a practical knowledge of the administration and management of military hospitals and an initiation into the ways of military life and service. This has raised the total of Indian medical officers trained at Netley to 1318. Since the Indian Medical Service was reopened in 1865 all officers joining have passed through the army medical school in close association with officers of the sister service. The name Netley, with all that it represents in the way of instruction, initiation, and social enjoyment, must abide lovingly in the minds and memories of officers of both services, just as the name Haileybury claimed the fond remembrance of Indian civilians and the name Addiscombe of Indian gunners and sappers in the old time, and as it is to be hoped the name Millbank, despite its ancient association with a penitentiary, will dwell kindly in the recollections of officers of the medical services in the future. During the six sessions that have elapsed since the transfer of the school to London and its reconstitution as the Royal Army Medical College the position of what remains of the old Army Medical School at Netley has been somewhat anomalous, but with the willing and generous coöperation of the principal medical officer and the staff of the hospital no friction or difficulty has been encountered, a circumstance of which I desire now to make thankful acknowledgment."

Surgeon-General BRANFOOT presented the prizes to the successful competitors and remarked that it gave him great pleasure to preside on so interesting an occasion and to be supported by Surgeon-General Quill who had been at Netley with him 33 years ago and whom he had not had the pleasure of meeting since then. He associated himself heartily with what Colonel MacLeod had said regarding the valuable assistance which the principal medical officer and the hospital staff so efficiently rendered in carrying on the work of instruction and training at Netley. The Army Medical School had served a great purpose in the past for the prevention of disease and the preservation of health in the navy and the army as well as in civil life, both in this and other countries; and the final closure of the institution could not fail to excite feelings of interest and regret among those who had passed through it. The removal of the school to the centre of life and progress and its reconstitution on a broader basis and with higher aims would no doubt conduce to the benefit of the services, of medical science, and of humanity. What precise arrangements were to be made in the future for perpetuating and developing the work commenced and carried on for nearly half a century at Netley he was unable to announce, but he was in a position to say that the Indian Medical Service would share fully in the advantages to be gained from the college, the erection of which had been commenced at Millbank. Surgeon-General Branfoot referred to the early retirement of two of the professors of the Army Medical School, Surgeon-General W. F. Stevenson, C.B., and Colonel McLeod. The former had been asked to preside on this occasion but unfortunately had found himself unable to come. He alluded to the good work done in the service and school by these officers. He congratulated those who had entered the Indian Medical Service and especially the prize-takers. He counselled them to maintain the habit of work in spite of climatic hindrances, for once lost it was very difficult to regain it. They must uphold a high standard of professional ethics in a country where the medical profession was in a stage of adolescence and development and the force of example and guidance was peculiarly needful and effective. Notwithstanding the recent brilliant advances which had been made in their knowledge of the etiology of tropical diseases they would find abundance of work awaiting them in India, more especially as regards the adaptation of increased knowledge to the circumstances and peculiarities of its inhabitants. The climate was no doubt trying to health, but more blame was perhaps laid on it than was justly due. They must, as prudent and sensible men, hold a proper balance between work and recreation and practise moderation and a wise adaptation to their new environment. He finally wished them God-speed in full confidence that [illegible] and all would do their utmost to maintain the fine traditions and honour of the service to which they were now admitted, "traditions which we who have retired from it very jealously cherish."

## MEDICINE AND THE LAW.

### *Aged One Minute.*

OCCASIONALLY this entry is seen on a certificate of death. It indicates the speedy exit of a newly born child. Such a case came before Dr. W. Wynn Westcott last week. He held an inquest upon a male child who was born living although the face was covered with "a caul." Owing to the incredible inattention of a woman assisting at the confinement the child, whose heart was visibly pulsating and whose limbs moved after birth, was allowed to "expire" without ever having had an opportunity to breathe. When tardily summoned medical aid arrived the child was too asphyxiated to be revived. This case enforces the fact that before a child can be positively asserted to have been live-born the direct evidence of eye-witnesses is often essential if doubt arises; and further, to be able to deny live birth it is not enough to prove by anatomical examination that the child's lungs have never been inflated by breathing. The child in question was undoubtedly alive when expelled from the mother and the coroner was correct in directing the parents to choose forthwith a name for their deceased son and to proceed to the registrar's office and register his birth. The coroner's certificate of death allowed them to have the body duly buried but of course not as inexpensively as if it had been stillborn. The definition of "a stillborn child" is still a matter for dispute and probably should not be identical with that of "a dead-born child." In fact, it would appear that the phrase "stillborn" originally signified "silent born"; the "still" days of Lent convey a similar idea. It is noteworthy that in France a child must live for three days before the birth is registrable.

### *A Child "En Ventre sa Mère."*

The legal position of a child *en ventre sa mère* has been much canvassed in courts of justice. In the Chancery Division the question whether such a child is "living" at the death of a testator has often arisen and appears to be answered in the affirmative, while it has been clearly laid down that an unborn child cannot be made the subject of a charge of murder in a criminal court. That the Chancery judges will regard a child *en ventre sa mère* as a living child was acknowledged in a case which was heard in 1895. It appeared that property was devised to the testator's wife for her life and after her death to the testator's daughter "for her absolute use and benefit in case she has issue living at the death of my [the testator's] wife, but in case she has no issue then living" then the property was to go elsewhere. When the testator's wife died his daughter was *enceinte*. It was held that she had issue living at her mother's death and was therefore entitled to take the property absolutely. The law upon the subject was thus stated in Blackstone's "Commentaries": "An

infant *en ventre sa mère*, or in the mother's womb, is supposed in law to be born for many purposes. It is capable of having a legacy or a surrender of copyhold estate made to it. It may have a guardian assigned to it and it is enabled to have an estate limited to its use and to take afterwards by such limitation as if it were then actually born." In a case which was heard last week by Mr. Justice Swinfen Eady an attempt was made to extend this doctrine. It appears that a testator referred to "sons of his brother born in the testator's lifetime" and it was contended that this expression must be held in law to include a child *en ventre sa mère* at the date of the testator's death. The learned judge refused to accept this argument which, he said, would have the effect of adding to the will the words "or in due time after his death." It follows, therefore, that the word "born" when it occurs in this connotation must be strictly interpreted.

## VISIT OF BRITISH PHYSICIANS AND SURGEONS TO PARIS.

### THE EXCURSION TO VICHY.

(BY ONE OF OUR SPECIAL COMMISSIONERS.)

ON Sunday, May 14th, the British visitors set forth for various excursions. Some of these had been planned at the eleventh hour. The principal excursion, denominated the official excursion because it was from the first mentioned on all the official programmes, consisted of a visit to Vichy and Evian. This expedition was admirably organised. Each person who had notified his intention to attend received on the day before starting his railway pass and a small book of instructions. In this were stated the hour of the departure from Paris, the name of the hotel, and the number of the room retained for him at Vichy; then the hour of the banquet and the number of the stall for the theatrical performance after the banquet, and thus throughout all the necessary indications were given. A special first-class corridor train had been secured and by 1 o'clock the guests began to assemble on the platform of the Lyons railway station. A restaurant car was attached to the train and a cold collation was available for those who had not been able to take their second breakfast or lunch before starting. Here, also, later in the afternoon tea was served. The corridor train greatly facilitated social amenities. Visits were interchanged from compartment to compartment just as occurs between the occupants of the boxes at the opera in the intervals of the performance. As there were more than 100 travellers in the train, of whom 41 were British visitors, there was neither lack of society nor flagging of conversation. Thus was the journey of five and a half hours' duration pleasantly accomplished. At the station of Vichy the visitors were shown into the reception room reserved for state occasions but they were not detained there any length of time by speeches. Dr. Nivière, President of the Medical Society of Vichy, in three or four sentences offered to all a hearty welcome and then led the way to the omnibuses and carriages waiting outside. Here, profiting by the Sunday holiday, a vast crowd had assembled to enjoy a good stare at *les médecins anglais et leurs dames*, the latter undoubtedly exciting the greatest curiosity. Some of the crowd cheered, others even attempted to push the carriages along, and it was quite evident that the advent of the British visitors was favourably considered by the general population of Vichy. An hour was allowed for dressing and then all the visitors assembled in the gaming room of the Casino, which, in consequence of its vast dimensions, had been selected for the banquet. The brilliancy of the scene was enhanced by the uniforms of the military surgeons of the garrison who made a point of being present to welcome their British colleagues.

After an elaborate and sumptuous repast the director of the Vichy Company, M. FÈRE, rose to propose the health of His Majesty King Edward VII. and Sir WILLIAM BROADBENT responded by proposing the health of the President of the French Republic, M. Loubet. Of course, the band accompanied these loyal toasts with the national airs of the two nations. Then M. FÈRE rose again to address himself especially to the visitors. He regretted that their sojourn would be so brief but hoped to be able to show them that which was most interesting. For the present evening they could only see the pleasure side but on the morrow they would visit the vast bathing establishment which had recently been transformed. They would also go to the various springs and have a glimpse of the smiling and open country around them, as this was such an important sanitary advantage and was a precious instrument in the hands of medical science. He was glad to say that every year several thousands of English visitors and invalids came to Vichy and their presence had helped to engender *l'entente cordiale* they were celebrating that day.

Dr. NIVIÈRE, President of the Medical Society of Vichy, having added some further words of welcome, Dr. HUCHARD responded on behalf of the French visitors to Vichy. Then he alluded to the great benefit for the cause of science and of peace which was likely to accrue from the visit of the British medical men. In this respect he wished to propose a toast; he wanted to drink to the absent, to the modest medical practitioners of France who had sent numerous letters of greeting and fraternal salutations to their colleagues of Great Britain. They were all highly honourable men but they were too poor and too busy to be present in person. Then he would also thank the Government of the French Republic for strengthening the friendship between the two countries by conferring the Commandership of the Legion of Honour on Sir William Broadbent. This distinction given to the chief of the British visitors was an honour conferred on them all. Finally, he saluted the ladies present, alluded to Her Majesty Queen Alexandra, and spoke of the triple alliance of learning, goodness, and beauty.

Professor CORNIL of the Paris Academy of Medicine also referred to triple attributes and forces and was most eloquent when he spoke of science, humanity, and woman. But at the same time he gave a historical sketch of the development of the thermal station. He related how Louis XIV. appreciated the waters and how *les Dames de France*, sisters of Louis XVI., came in the reign of Louis XV. and gave endowments so that the springs of Vichy should be well cared for. In the time of Charles X. the Duchess du Berry greatly benefited from the waters. Nevertheless, Vichy as it was known to-day was essentially the creation of Napoleon III. It was in 1863 that the late Emperor planned the whole modern town, traced the boulevard, had the embankment of the Allier built, and the bridge thrown over the river. Five years ago the contract between the State, which owns the springs, and the company which is responsible for the entire enterprise was renewed but only on the condition that very great improvements should be effected and that a much higher rent should be paid to the State. Thus the nation at large had secured a better share in the profits that accrue.

M. LASTEYRAS, the Mayor of Vichy, was the next speaker, and he distinguished himself by the brevity of his speech and the clearness with which he made himself heard. It was a double pleasure, he said, for him to receive the British visitors, first, because the British were old friends, and, secondly, because of the new honour that had been conferred upon them in the person of Sir William Broadbent. He drank to the British nation, the friend of France since the events that had been dear to them all.

Dr. CHARLES CORMACK, a British physician practising at Vichy, addressed himself principally to his French medical colleagues but he also described the advantages to be found at Vichy for the treatment of various diseases.

Sir WILLIAM BROADBENT then rose to reply and to offer his best thanks. So many happy thoughts, he said, and good words had been expressed that it was extremely difficult to follow them and to vie with such eloquence. He gave a lengthy account of his knowledge of the leading French medical teachers and the revolution which Laennec and others had effected in the science of healing. Any honour coming from a country that had rendered such services to humanity was greatly to be appreciated. The Commandership of the Legion of Honour which had been conferred upon him was so exalted a distinction that he was confused and overwhelmed. If he failed to express all that he felt his feelings were none the less deep and sincere.

All these speeches were not over till after 10 o'clock and then the guests were invited across the great central hall of the Casino to the theatre. This is a very fine building, easy of access, spacious, and airy. There are 1400 stalls, from all of which an equally good view of the stage can be obtained. Here the best singers and actors not only of France but of other countries may be heard during the season. Thus if Coquelin or Sarah Bernhardt comes to Vichy

occasionally so also may be seen, and on the same stage, the incomparable Italian actress La Duse. On the present occasion there was only time for a short play, and Edmond Rostand's comedy, *Les Romanesques*, was very effectively rendered.

At 9 o'clock on Monday morning carriages were ready at the hotel doors to take the visitors round. The first place inspected was the manufactory where are made the Vichy pastilles. Here are great cylinders where 5000 litres of water can be evaporated in an hour. The salts that result if dissolved in the proportion of five grammes in a litre of pure spring water reconstitute the mineralisation of the Vichy water. Not that this is a perfect imitation, but it is a good substitute when the water itself cannot be obtained. The same salt is pulverised, mixed with sugar and mint or other flavouring extract, and forms the well-known Vichy pastilles. Last year no less than 85,283 kilogrammes of salts were extracted from the water and thus employed. These salts are placed on trays, put into air-tight compartments, and exposed to carbonic acid gas so that they may reabsorb the carbonic acid that has been lost during the process of evaporation. In pulverising the sugar great care is taken to make it pass through very fine sieves so as to remove all foreign particles of dirt. On the first floor of the building some 70 women are busy all day long packing the pastilles into boxes and affixing labels.

The best-known springs belonging to the State were visited. There are in all eight but the most frequented and celebrated are those of La Grande Grille, l'Hôpital, and Célestins, the last being the most suitable for a table water. The rock on which the old convent of the Célestins stood and the surrounding park provide the object of an attractive walk and are a pleasant place for the patients to congregate, to drink the waters, and to enjoy each other's society. The Hôpital spring is behind the Casino and is especially frequented by dyspeptic patients. The Grande Grille is considered the most perfect example of what, in the ordinary acceptation of the term, Vichy waters are supposed to be. The water is hot, 41° C., and it is in temperature that these springs vary most. The mineral contents of the waters are very similar. In various directions round and through the parks and gardens there are covered ways where the open air can be enjoyed while sheltered from the rain or the sun. Here people walk up and down, glass in hand, sipping occasionally the water which has been prescribed for them.

Finally and near the railway station there are vast premises where, in the course of a year, between 15,000,000 and 16,000,000 bottles are sterilised, filled with Vichy water, corked, adorned with capsules and labels, packed, and sent off to all parts of the world. This in itself is a vast business and involves a very elaborate technique to insure its being done in a cleanly, expeditious, and economical manner. For instance, it is no easy matter to insure the purity of a cork. It may be washed on the surface but inside organic growth can survive. So at Vichy these growths are first encouraged; then, when it is thought that they are fully developed they are destroyed by exposing the corks to great heat and then to mechanical pressure.

What, however, proved of the most absorbing interest to the majority of the visitors was the magnificent and newly constructed first-class bathing establishment. This vast edifice covers 10,000 square metres out of 32,000 square metres of land. The parts of this estate not built upon serve as gardens, lawns, and roadways embellished with trees and floral ornamentation. The principal façade is 170 metres in length and the establishment is 165 metres wide. In the centre there is the main entrance surmounted by a monumental dome. Artistic decorations and paintings abound inside and from this centre broad corridors lead in all directions. What is practically necessary and useful has been provided in a manner that is artistic and pleasing to the eye. Here there are 136 bathrooms and six of them being larger and more artistically decorated than the rest they are called *bains de luxe* and are reserved for those who like to spend more than is necessary so as to purchase some special privilege. There are 13 different places for douches and 24 for douches with massage. Here copper-covered doors have to be provided to prevent the destructive effect of the mineral water. Numerous dressing rooms are attached to the douche and other departments. Then there are hot-air baths, vapour baths, Dowsing baths, large and small, and hot and cold swimming baths. On the first floor provision is made for more special treatment; rectal and vaginal douches, the washing out of the stomach or the bladder, nasal and aural douches, inhalations, pulverisations, electric treatment, x rays, and so on. Each bath has three taps, for hot, cold, and mineral water. As a rule, the baths consist half of ordinary and half of mineral water.

With the bathing there is every facility for physical exercise. An excellent fencing and boxing room is provided and there are also facilities for gymnastics. But for those who will not, or who cannot, take exercise there is a Zander institute where the patient is forced by machinery to make the necessary movements. This "mechano-therapy" is most ingenious and each muscle of the body can be separately exercised. Thus some appliances keep the wrist or the hands in movement, others the arms, the legs, the back, or expand the chest. Then there is a sort of mechanical massage by vibration or rapidly delivered slight taps, the little padded striking hammers being moved up and down the part it is desired to treat. Many of these machines were evidently a source of interest to a large section of the visitors and the majority experimented with them upon themselves. This in many cases led to a good deal of amusement. Indeed, when once the visitors reached this part of the establishment it was a matter of some difficulty to persuade them to leave and to continue the inspection of the rest of the building. At last and after visiting the library, where, by the way, it may be pointed out that any appropriate English medical works would be gratefully received, the visitors gradually found their way back to the beautiful cream-coloured hall under the great dome. There they admired once more the paintings of the beautiful nymphs bathing in the Vichy waters, looked down the long passages with their rows of doors, and thought of the immense number of baths that must be given there annually. Such thoughts were soon substantiated by a big array of statistics. Thus it appears that whereas the number of bathers was set down at 16,044 in 1861 they amounted to 40,050 in 1881 and to 71,734 in 1902.

By about noon, after some three hours' unceasing investigation, the visitors were able to return to their hotels, having spent an instructive and interesting morning. Breakfast, or lunch as we should say in England, was then the principal consideration. Dr. R. Durand Fardel, consulting physician at Vichy, entertained Sir William and Lady Broadbent and several other British and French guests to *déjeuner*, which was admirably served in a private room at the Hôtel du Parc. There were no speeches but much cordiality prevailed. What with the lengthy menu and the animated conversation there remained only just time enough to pack and to reach the station where the special train was waiting and ready to start for Evian at 3.16 P.M.

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## EXCURSIONS TO BIARRITZ, PAU, CAUTERETS, ARGELÈS, SALIES-DE-BÉARN, AND ARCACHON.

(BY FREDERICK J. MCCANN, M.D. EDIN., F.R.C.S. ENG.)

On Sunday, May 14th, a party numbering 40, composed of British physicians and surgeons accompanied by several ladies, left Paris in a special saloon carriage for Biarritz. The weather being all that could be desired an excellent view of the surrounding country was obtained and *la belle patrie* in all its springtide freshness seemed to breathe forth a joyous welcome. The comfort of the travellers was enhanced by the provision of an excellent *déjeuner* and dinner served during the journey.

Biarritz was reached at 10 o'clock on Sunday evening and carriages were in waiting to convey the visitors to the casino. All Biarritz turned out to welcome her guests, the approaches to the casino being lined by enthusiastic crowds. The town itself was illuminated and a salvo of cannon was fired on the arrival of the visitors. The guests on alighting at the casino were received by the MAIRE (M. FAIBANS) who cordially bade them welcome in a felicitous speech, to which Director-General A. H. KEOGH responded. Refreshments were partaken of at the casino and *l'entente cordiale* was toasted.

On the following morning the assembled guests, accompanied by the Maire and the municipal councillors, drove in special carriages to the Thermes-Salins de Biarritz. The arrangement of the baths was explained and the excellence of the organisation was much admired. A visit was then paid to the golf club, where refreshments were offered and where a photograph was taken. The visitors re-entered their carriages and were driven along the Plage, whence an excellent view of the wide expanse of the sea front was

obtained. A visit was paid to the English club, where refreshments were again provided, and then the guests returned to the Palace Hotel (the former palace of the Empress Eugénie). A sumptuous *déjeuner*, to which a large company had been invited, awaited the visitors on their return. A military band, sent specially from the garrison at Bayonne, discoursed sweet music during the repast. The MAIRE presided over the assembled company and in a graceful speech welcomed the British visitors. Director-General KEOGH and Mr. J. A. BLOXAM responded.

After the *déjeuner* the visitors left for Pau, which was reached at about 6 P.M. A banquet was given at the Winter Palace under the presidency of the Maire of Pau who welcomed the visitors. Amongst the guests were the Préfet of the Basses-Pyrénées and H.B.M. Vice-Consul. A concert of vocal and instrumental music followed the dinner and the excellent choral singing was a feature of this entertainment.

On Tuesday morning motor-cars were placed at the disposal of the party and a visit was paid to the château of Henri IV., which contains some fine old tapestries. The guests were then driven into the country to visit the kennels and the golf course. *Déjeuner* was provided at the Hôtel Gassion and the Hôtel de France.

Leaving Pau by train at 2 P.M. the party journeyed to Cauterets, which was reached at 3.30 P.M. A beautiful view was obtained of the snow-clad peaks of the Pyrénées and the wonderful vegetation extending upwards almost to the snow line. The reception at Cauterets was picturesque and in keeping with the magnificence of the surroundings. On the platform the Corps of Guides was drawn up in line, accompanied by their band which played the British National Anthem as the train drew up. The Guides, in their pale blue uniform with white leggings, presented a striking appearance. They were medium-sized, thick-set, bronzed mountaineers who, from their physique and bearing, were evidently accustomed to feats of endurance. The Maire of Cauterets received the visitors who then drove in procession, headed by the Guides, to the hotel where tea was served. They then embarked on the electric railway and afterwards journeyed in carriages to the Pont d'Espagne.

Cauterets, from its situation and climatic advantages, deserves to be more widely known in this country. It is situated at an altitude of 935 metres and is surrounded by lofty mountains, the snow-clad summits and luxurious vegetation of which add to the grandeur of the scene. Indeed, a trip up the mountains on the electric railway discloses a scene of magnificence and grandeur which leaves a lasting impression on the traveller. At the Pont d'Espagne a fine view was obtained of the rushing torrent which takes its source in the Lac de Gaube. The approach of a mist prevented the party from extending their excursion to the Lac but all returned to the hotel delighted with the wonderful panorama.

The best efforts of Mr. Meillon had been directed to giving the guests an excellent banquet on their return. The Maire of Cauterets again welcomed the visitors and suitable replies were made. After dinner some capital photographs were shown on the lantern by Dr. MEILLON. These illustrated the experiences of mountaineers in this region and the lucid explanations given by Dr. Meillon in English added greatly to the value of the photographic exhibition. Dancing was also enjoyed and formed a fitting conclusion to one of the most enjoyable days of the tour.

On Wednesday morning an early visit was paid to the thermal establishment and an opportunity was afforded to try the sulphur waters. These waters are specially suited for catarrhal states of the nose, the throat, and the air passages, and have already obtained considerable renown. But, time pressing, a start had to be made to catch an early train to Argelès, after an affectionate *au revoir* to Dr. Meillon and his father and to the Maire of Cauterets.

Every member of the party felt the warmth of their welcome to this picturesque spot, the pure clear air of which had, even in the short time, produced its invigorating effect and where everything had been done to add to their comfort and enjoyment. A word must be said of the great kindness of Dr. Meillon who, alike as travelling companion, guide, lecturer, and last but not least, pianist, showed his remarkable versatility and was indeed a "host in himself." He will be sure to have an enthusiastic welcome when he comes to London.

After arriving at Argelès the party visited the Medical Institute where the apparatus for the treatment of orthopædic cases was exhibited and they were later entertained to *déjeuner* at the Hôtel du Parc, which is prettily situated in a wooded garden. Speeches were made by the Maire and others. The intelligence that the Préfet of the Hautes Pyrénées was prevented from attending by an accident to his child was received with regret. The Sous-Préfet, by his cordiality and *bonhomie*, endeared himself to all the members of the party and proved an excellent substitute. His health was proposed and drunk with enthusiasm.

A drive of five miles through a beautiful bit of country took the party to Lourdes. Here a hurried visit was paid to the grotto, the sacred pool, and the church. The party then left by train for Salies-de-Béarn where they were met at the station by the Maire, Dr. Matton, and other medical men. They were conducted over the salt works and the thermal establishment. Dinner was served at the different hotels and afterwards a reception was given at the thermal establishment, followed by a concert. Speeches were made by the Maire and others and a most enjoyable evening was spent. Some of the party left for Paris, while others remained for the night at Salies-de-Béarn.

The town is situated in a Pyrenean valley and is much used as a health resort by the French and the Spanish but is not sufficiently well known in the British Isles. The climate is mild and sedative, being well suited for convalescents and nervous patients. The bromo-iodine salt springs have already obtained considerable reputation in the treatment of tubercle, anæmia, and other disorders.

Mr. Rose, the proprietor of the Grand Hôtel du Château, rendered great service to the visitors during their sojourn at Salies. Dr. Matton of Salies, to whom the idea of having this tour to the South of France was mainly due, did everything in his power to promote the comfort and enjoyment of the guests.

Some of the party journeyed on the following day to Arcachon where a delightful afternoon was spent viewing this charming health resort. A cordial invitation was extended to them to remain another day and enjoy the hospitality offered by M. de Galne (Président du Syndicat d'Initiative), Dr. Festal and M. Ferras (members of the administrative council). In the evening the party returned by train to Paris, arriving next morning at the Quai d'Orsay.

Thus terminated one of the most enjoyable tours which has ever been organised. To say that the journey through France was a triumphal progress is no exaggeration, as the kindness and hospitality of the towns visited were beyond all praise. Many graceful compliments were paid to the visitors by their French hosts and many new friendships were made. The ladies of the party were specially favoured with presents of choice flowers during the journey.

Amongst the large number of those who aided in making the visit such a pronounced success special mention must be made of the Préfet of the Hautes Pyrénées, the Sous-Préfet at Argelès, the Président of the Vallée, the Director of the Funicular Railway (who had travelled specially from Paris), the Maire of Cauterets, Dr. Meillon and his father, and last, but not least, Dr. Matton. The aid given by the British authorities was also much appreciated. The party was under the charge of Dr. Leonard P. Mark of London, an accomplished French scholar, whose uniform courtesy and tact made him popular with all the members of the party. Acting as spokesman and interpreter his services were invaluable. *Vive la France! Vive l'Entente Cordiale!*

## ROYAL COLLEGE OF SURGEONS IN IRELAND.

THE annual meeting of the Fellows was held on June 3rd, Mr. Arthur Chance, the President, being in the chair. The annual report was read, which showed a prosperous year. Considerable improvements were made during the year, notably a new examination hall was opened and a perfect system of electric lighting was laid on for the entire buildings from the corporation supply. The honorary Fellowship of the College was conferred on Dr. A. Traill, Provost of Trinity College. The Carmichael prize essay was awarded to Dr. M. F. Reaney, the Barker anatomical prize to Mr. C. Cooper, the Mayne scholarship to Mr. A. N. Crawford, the Carmichael scholarship and the Stoney memorial gold medal in anatomy to Mr. J. Prendiville, and the gold medal in operative surgery

to Mr. J. S. Dunne. The Stanhope gold medal, awarded by the Royal Humane Society to the person considered to have performed the bravest act of the year, was conferred on Captain Thomas Campbell Mackenzie, R.A.M.C., D.S.O., a Licentiate of the College. Six years ago he was nominated by the College for a commission in the Royal Army Medical Corps and in this short time he has won seven decorations—viz., the Stanhope gold medal, the Royal Humane Society's silver medal, the Arnott gold medal, the silver medal of the French Society for Salvage of Shipwrecks, the Distinguished Service Order, and the two medals of the South African War, with four clasps. Since the last report 16 candidates passed the examination and were admitted to the Fellowship, 67 passed the conjoint examination with the Royal College of Physicians and received the diploma in Surgery and Midwifery, 13 passed the conjoint examination with the Royal College of Physicians and received the conjoint diploma in Public Health, nine passed the examinations and received the licence in Dental Surgery, and 60 passed the conjoint preliminary examination with the Royal College of Physicians and received certificates. Eight Fellows, 42 Licentiates, and eight Licentiates in Dental Surgery died during the year. There are at present living 11 honorary Fellows, 443 ordinary Fellows, 2857 Licentiates, six honorary Diplomates in Public Health, 193 ordinary Diplomates in Public Health, and 516 Licentiates in Dental Surgery.

## VITAL STATISTICS.

### HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8133 births and 4390 deaths were registered during the week ending June 3rd. The annual rate of mortality in these towns, which had been 14·4 and 14·6 per 1000 in the two preceding weeks, further rose last week to 14·7 per 1000. In London the death-rate was 14·7 per 1000 and it also averaged 14·7 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 4·3 in Hornsey, 5·5 in Leyton, 7·3 in Hanley, 8·2 in King's Norton, 9·2 in West Ham, 9·4 in Tottenham, and 9·5 in Devonport; the highest rates were 19·3 in Newcastle-on-Tyne, 19·4 in Preston, 19·5 in Sunderland, 20·5 in Rochdale, 20·9 in Stockton-on-Tees, 22·7 in Swansea, 25·3 in Tynemouth, and 26·0 in Middlesbrough. The 4390 deaths in these towns last week included 411 which were referred to the principal infectious diseases, against 401, 442, and 414 in the three preceding weeks; of these 411 deaths, 152 resulted from measles, 118 from whooping-cough, 60 from diarrhœa, 30 from scarlet fever, 28 from diphtheria, 22 from "fever" (principally enteric), and one from small-pox. In Hornsey, Leyton, Brighton, Southampton, Wolverhampton, Walsall, Preston, York, Swansea, and in nine other smaller towns no death from any of the principal infectious diseases was registered; while the highest death-rates from these diseases were recorded in West Bromwich, Smethwick, Coventry, Warrington, Salford, Sheffield, Rotherham, Sunderland, and Tynemouth. The greatest proportional mortality from measles occurred in Willesden, Walthamstow, West Bromwich, Smethwick, Coventry, Derby, Birkenhead, Warrington, Salford, Sheffield, Sunderland, and Merthyr Tydfil; and from whooping-cough in East Ham, Hastings, Ipswich, and Tynemouth. The mortality from scarlet fever, from diphtheria, from "fever," and from diarrhœa showed no marked excess in any of the large towns. One death from small-pox was registered in Bradford, but none in any other of the large towns. The number of small-pox cases remaining under treatment in the Metropolitan Asylums Hospitals, which had been 17, 15, and 10 on the three preceding Saturdays, had further fallen to nine on Saturday last, June 3rd; one new case was admitted during the week, against two, three, and none in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital at the end of last week was 2267; against 2177, 2211, and 2200 at the end of the three preceding weeks; 351 new cases were admitted during the week, against 319, 319, and 312 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 251, 226, and 218 in the three preceding weeks, rose again to 235 last week, and were 54 above the number in the corresponding period of last year. The causes of 34, or 0·8 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Portsmouth, Bristol, Nottingham, Salford, Bradford, Leeds, Hull, Newcastle-on-Tyne, and in 51 other smaller towns; the highest proportions of uncertified deaths were registered in Birmingham, Liverpool, Manchester, South Shields, and Gateshead.

### HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 15·5, 16·7, and 18·1 per 1000 in the three preceding weeks, declined again to 16·9 per 1000 during the week ending June 3rd, but was 2·2 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 10·2 in Leith and 13·7 in Aberdeen and in Perth, to 17·8 in Greenock and 18·3 in Glasgow. The 567 deaths in the towns included 33 which were referred to measles, 24 to whooping-cough, 16 to diarrhœa, three to scarlet fever, three to "fever," and one to diphtheria. In all 80 deaths resulted from these principal infectious diseases last week, against 76 in each of the two preceding weeks. These 80 deaths were equal to an annual rate of 2·4 per 1000, which was 1·0 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of measles, which had been 32, 26, and 30 in the three preceding weeks, rose again last week to 33, of which 24 occurred in Glasgow and eight in Edinburgh. The deaths from whooping-cough, which had been 30, 25, and 24 in the three preceding weeks, were again 24 last week, and included 14 in Glasgow, four in Paisley, and three in Edinburgh. The fatal cases of diarrhœa, which had been 19 and seven in the two preceding weeks, rose again last week to 16, of which seven were registered in Glasgow, four in Edinburgh, two in Dundee, and two in Aberdeen. The deaths from scarlet fever, which had been two, one, and three in the three preceding weeks, were again three last week, and included two in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 108, 83, and 107 in the three preceding weeks, declined again last week to 88, but were slightly above the number in the corresponding period of last year. The causes of 19, or more than 3 per cent., of the deaths registered in these eight towns last week were not certified.

### HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 23·7, 19·5, and 19·0 per 1000 in the three preceding weeks, rose again to 19·4 per 1000 during the week ending June 3rd. During the past four weeks the death-rate has averaged 20·4 per 1000, the rates during the same period being 14·5 in London and 16·6 in Edinburgh. The 141 deaths of persons belonging to Dublin registered during the week under notice were three in excess of the number in the preceding week and included eight which were referred to the principal infectious diseases, against eight, six, and four in the three preceding weeks; of these, three resulted from measles, three from whooping-cough, one from scarlet fever, and one from diarrhœa, but not any from small-pox, from diphtheria, or from "fever." These eight deaths were equal to an annual rate of 1·1 per 1000, the death-rates last week from the principal infectious diseases being 1·6 in London and 2·5 in Edinburgh. The fatal cases of measles, which had been four, two, and one in the three preceding weeks, rose again to three last week. The deaths from whooping-cough, which had been one in each of the two preceding weeks, increased last week to three. The 141 deaths in Dublin last week included 25 of children under one year of age and 34 of persons aged 60 years and upwards; the deaths both of infants and of elderly persons were slightly below the respective numbers recorded in the preceding week. Five inquest cases and seven deaths from violence were registered; and 58, or more than two-fifths, of the deaths occurred in public institutions. The causes of three, or more than 2 per cent., of the deaths registered in Dublin last week were not certified.

## THE SERVICES.

### ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: H. W. Macnamara to the *Royal Arthur* on commissioning; T. J. Crowley to the *Impregnable*; and T

Austen to the *Albemarle*. Staff Surgeons: H. B. Marriott to the *King Alfred* on recommissioning; N. L. Richards to the *Antrim* on commissioning; E. T. Meagher to the *Ramillies*; R. S. Bernard to the *President* for three months' hospital course; E. A. Penfold to the *Terrible*; A. Gaskell to the *Highflyer*; and F. J. A. Dalton to Chatham Hospital. Surgeons: F. E. Anley to the *Antrim* on commissioning; A. C. Renwick to the *Indus*; B. S. Robson to the *Skipjack*; and A. I. Sheldon to the *Pembroke* for disposal.

ROYAL ARMY MEDICAL CORPS.

Captain C. G. Thomson is appointed Medical Officer in charge of Ballykinlar Camp during the training of the Militia battalions. Major C. L. Josling, Acting Principal Medical Officer to the troops, Hong-Kong, is appointed a member of the Sanitary Board of that port.

VOLUNTEER CORPS.

*Royal Garrison Artillery (Volunteers)*: 2nd Devonshire: Surgeon-Lieutenant M. B. Hay resigns his commission (dated June 7th, 1905). 2nd Middlesex: Surgeon-Captain (Honorary Captain in the Army) A. Thorne is granted the honorary rank of Surgeon-Major (dated May 15th, 1905).

*Rifle*: 1st Middlesex (Victoria and St. George's): Surgeon-Lieutenant-Colonel Pearse is granted the honorary rank of Surgeon-Colonel (dated May 8th, 1905).

Consequent upon the reorganisation of the 2nd and 3rd Volunteer Battalions of the Welsh Regiment, and the 3rd Glamorgan Volunteer Rifle Corps, His Majesty has been graciously pleased to approve of the following transfer with effect as from April 1st, 1905:—To be Medical Officer: Surgeon-Major D. Hepburn, from the 3rd Volunteer Battalion the Welsh Regiment.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

Harwich Bearer Company: Lieutenant W. A. Gibb to be Captain (dated June 3rd, 1905).

ARMY MEDICAL RESERVE OF OFFICERS.

The undermentioned Surgeon-Majors to be Surgeon-Lieutenant-Colonels: H. W. Roberts (dated Feb. 28th, 1905), W. H. Packer (dated May 26th, 1905), and J. J. de Z. Marshall (dated May 27th, 1905). Captain W. R. Matthews, Manchester Companies, Royal Army Medical Corps (Volunteers), to be Surgeon-Captain (dated June 7th, 1905). Surgeon-Captain T. F. Devane, having resigned his commission in the Volunteers, ceases to belong to the Army Medical Reserve of Officers (dated June 7th, 1905).

THE WAR IN THE FAR EAST.

There is no news of a medical nature to be recorded from the seat of war nor is there likely to be any for some time to come relative to the great naval victory of Admiral Togo at Tsushima, to be henceforth known as "the battle of the Japan Sea." The most remarkable circumstance connected with that battle is the wholesale destruction, amounting to the practical annihilation, of the Russian fleet which was wrought by the Japanese at such a relatively insignificant loss to themselves. It is a platitude to say that the application of scientific discoveries to modern methods of war has revolutionised the whole system and notably so in naval warfare. When we read of the number of Russian battleships sunk and of the consequently sudden and appalling sacrifice of life entailed thereby we are naturally at a loss to see where any sort of medical service aid could by any possibility come in. The only thing that could be done with any chance of success in such circumstances would be to make an attempt at rescuing as many men as possible from drowning—an obviously difficult and hazardous undertaking under the conditions of a naval battle.

It is gratifying to learn that the wounded Admiral Rojdestvensky is making satisfactory progress and gradually regaining strength. It is estimated that it will take about two months for his recovery. The Admiral is receiving, it is needless to say, every attention on the part of the Japanese medical officers and the hospital authorities. Admiral Togo has visited his late adversary and shown all the considerate sympathy which brave men always feel for one another in such circumstances.

FOREIGN UNIVERSITY INTELLIGENCE.—*Strasburg*: Dr. Hugo Fuchs has been recognised as *privat-docent* of Anatomy.—*Tübingen*: A Professorship of Hygiene is about to be established.—*Vienna*: Dr. Karl von Stejskal has been recognised as *privat-docent* of Internal Medicine.

# Correspondence.

"Audi alteram partem."

## "CANCER BODIES" AND THE NORMAL REPRODUCTIVE CELL CYCLE.

*To the Editors of* THE LANCET.

SIRS,—I have read Dr. C. Powell White's Erasmus Wilson lecture in which, as he states in his letter in THE LANCET of June 3rd, p. 1542, he has drawn attention to the resemblances between cancer bodies and the "paranuclei" of spermatocytes. There is, of course, nothing new in this. My colleagues and I had already alluded to Borrel's work in our paper recently read before the Royal Society. The whole point of the matter lies in this: that these earlier comparisons were largely founded on the erroneous interpretation of an altogether inadequate range of facts. Consequently they at once gave way before the first breath of adverse criticism. Similarly, the passage in Dr. White's lecture in which he refers to these bodies would certainly fail at the present time to receive the assent of a cytologist conversant with the details of spermatogenesis.

As was pointed out in our paper the archoplasmic vesicles neither originate from, nor do they contain, centrosomes, but they are definite bodies formed at certain fixed periods in the normal reproductive cell cycle. In their mode of origin and development they correspond stage for stage with the so-called cancer bodies. These brief remarks are necessary to render our own position with regard to the investigation clear. We are, of course, far from wishing to detract from the value of the observations or theories of other workers in this difficult field of research.

I am, Sirs, yours faithfully,

June 6th, 1905. J. B. FARMER.

## THE NATURE OF DIABETES MELLITUS.

*To the Editors of* THE LANCET.

SIRS,—May I be allowed space to reply to the letters of Dr. Arnold Lorand and Dr. W. Langdon Brown who have done me the honour of criticising my recent Goulstonian lectures on Diabetes Mellitus? With regard to Dr. Lorand's views, I would point out that, in accordance with the well-known logical rule that a universal proposition is upset by a single contradictory instance, the occurrence of even one authentic case of combined diabetes and myxœdema is sufficient to disprove the suggestion that an excess of thyroid secretion is the invariable basis of the former disease. Dr. Lorand appears to admit that such cases have occurred, though very rarely. Both diabetes and myxœdema being rather uncommon conditions, we could not in any case expect to find the combination with any frequency. Nevertheless, it is not impossible that diabetes may be produced by several different causes and excess of thyroid secretion may be one of them.

In reply to Dr. Langdon Brown I would say that the gist of my argument was an insistence upon an internal formation of sugar as the basis of diabetes. The admission that digestive irregularities may cause excess of sugar to be poured into the blood was merely a concession to the views of those who hold what I have called the alimentary theory of the disease and I willingly admit the erroneous nature of this concession if, as Dr. Langdon Brown implies, it has been definitely proved that all carbohydrate material is invariably converted into sugar in the alimentary canal and absorbed in this form. I had thought that at least one physiologist of eminence, Dr. F. W. Pavy, maintained that some of the carbohydrates were absorbed in the form of fat and that so far absolute proof was not available in either direction. With regard to the elimination of fat in liphæmia I had not meant to imply that a direct combustion took place in the pulmonary capillaries, but that the lung tissue might be the seat of active change and that the fat was brought there for the purpose. This again, however, is but a side issue. I can assure Dr. Langdon Brown that I was acquainted with the interesting work of Bayliss and Starling upon the pancreatic secretion, but I understood their observations to relate to the digestive secretion of the gland, whereas the factor at fault in diabetes appears to be an internal secretion quite distinct from the pancreatic juice. It might even be

argued that as the pancreas is supplied with nerves the fact that the digestive juice is secreted independently of their control is in itself an argument in favour of their influence upon the internal secretion, as otherwise the nerves would be almost functionless. I admit that the action of suprarenal extract in the production of glycosuria is obscure, but for reasons given in my lectures I still think that, notwithstanding the experiments on birds quoted by Dr. Langdon Brown, a direct action on the pancreas is the simplest explanation. It is possible, however, that the action is similar to that of phloridzin. With regard to the criticism that if the fat is converted into sugar it cannot appear in the blood unchanged (liphæmia), I pointed out that in normal conditions fat appears to leave the cells in which it is contained by a process of resolution and re-formation, but that in certain circumstances (? rapid excretion by the cell) droplets of fats are extruded unchanged. I therefore suggested, or intended to suggest, that the formation of sugar in diabetes was analogous to, or identical with, the former process, while the appearance of fat in the blood—a rare condition—was an instance of the latter. Both could occur simultaneously either in the case of individual fat-cells or in different cells. As to the source of sugar in starving animals treated with phloridzin, is it proved that in a starving animal every particle of fat can be removed from the body? My recollection of the classical experiments of Voit on this subject is that in an animal which had been starved to death it was found that 97 per cent. of the fat had disappeared. In a starving (living) animal there should therefore be over 3 per cent. of fat still present. Consequently I do not think that the experiment with phloridzin upon such an animal proves the origin of sugar in proteid. The possibility of such an origin I explicitly admitted in my lectures and I must adhere to the conclusion there expressed that time and further observations are needed to settle the matter.

May I take the opportunity of adding that it has been pointed out to me recently, in answer to a question of mine, by Dr. Walter G. Smith of Dublin, that it is possible by a series of chemical substitutions to obtain sugar from glycerine, and according to Thomson and Bloxam's text-book such sugar is identical with glucose. Apologising for the length of this letter, which I have condensed as far as possible,

I am, Sirs, yours faithfully,

Harley-street, W., June 5th, 1905. W. CECIL BOSANQUET.

## THE ALTERED TREATMENT OF PNEUMONIA DURING THE LAST QUARTER OF A CENTURY.

*To the Editors of* THE LANCET.

SIRS,—When I was a student of medicine I studied under, amongst other celebrated teachers, Dr. R. Dwyer Lyons, who was a Doctor of Medicine, Fellow of the College of Physicians, ex-president and Fellow of the King and Queen's College of Physicians, and M.P. for the city of Dublin. He was amongst the first rank in his profession as a sound practical physician and was connected with the medical and fever divisions of the Richmond, Whitworth, and Hardwick Hospitals, where I had every opportunity of witnessing his successful treatment of pneumonia. Dr. Lyons usually prescribed quinine internally (which he regarded more or less as a specific), coupled with suitable expectorants, and later iodide of potassium, but above all and everything else he had great faith in, and invariably ordered, "blistering" locally over the portion of the lung or lungs affected. The results were always so encouraging and satisfactory that I can only remember of a single instance of death (if that can be called one due to pneumonia), in an alcoholic subject, a man, aged 56 years, in whom the post-mortem examination revealed disease of the brain, liver, and kidneys, as well as grey hepatisation of the lungs. My experience, extending over a quarter of a century in a large practice in Suffolk, is this: that during the first 15 years of that time, when I prescribed as above described, recovery invariably took place and that during the remaining ten years when I practically discarded "blistering" the results were not so uniformly satisfactory. I reluctantly discontinued counter-irritation by means of large blisters for two reasons—viz., that I found that most text-books and books of references on medicine disapproved of that mode of treatment and, secondly, should a consultant be called in as a second opinion he would in all probability also join in disapproval, holding to the opinion that an open surface caused by a blister was contra-indicated in a disease believed by many to be but a local manifestation of a general blood poisoning, which theory I am inclined to believe is only true in the minority and not in the majority of cases.

To sum up, blood-letting in general has gone out of fashion and has been boycotted or discarded by the medical profession; now comes the turn of blistering, so that we have jumped in half the life-time of many practitioners from one extreme to the other.

I am, Sirs, yours faithfully,

June 4th, 1905. H. IVERS KIRKPATRICK.

## SOME CONSIDERATIONS CONNECTED WITH THE RELATIVE IMMUNITY OF THE JAPANESE ARMIES FROM TYPHOID FEVER.

*To the Editors of* THE LANCET.

SIRS,—Referring to the leading article with this title in THE LANCET of May 20th, p. 1365, I think we may go further than merely to "surmise that the diet of the Japanese, no less than their admirable tactics of precaution, has saved them from the scourge of typhoid fever." I think there is now sufficient evidence to show that all infections, and especially those of the alimentary tract, are much less liable to attack vegetable feeders and abstemious individuals in general, such as are the Japanese, than those of the same class, whatever their nationality, who indulge in animal food and alcohol. Japanese soldiers, by reason of their simple diet, splendid physical training, and excellent education in hygiene, are better able to resist the devitalising conditions inseparable from a lengthy campaign than are their fellows of Western nations. In addition to the hereditary advantages conferred on the Japanese through the simple and physiological lives of generations of their ancestors, due import must be accorded to the manner in which they individually avail themselves of the modern benefits discovered by preventive medicine. In this connexion it is reported that each soldier carries a supply of pills containing creosote, and takes one after each meal as a precaution against diarrhœa. He is thoroughly instructed in the modes of infection of typhoid fever and dysentery and what is known of their prevention, and he promptly and rationally receives and acts upon this knowledge.

I am, Sirs, yours faithfully,

London, May 31st, 1905. D. SOMMERVILLE, M.D.

## THE PETITION OF THE LICENTIATES OF THE SOCIETY OF APOTHECARIES TO THE GENERAL MEDICAL COUNCIL.

*To the Editors of* THE LANCET.

SIRS,—Most of the signatories to this petition will have learned by this time that the General Medical Council considers that it has no power to alter the designation of the Licentiates as desired. I am sure that I am voicing the feelings of the majority when I say that we thank the Council for the sympathetic way in which it received the petition and for the careful consideration which was given to it. There is one member, however (Dr. Norman Moore), who, if he is correctly reported, hardly treated us fairly when he hinted that we desired to claim titles which had not been earned. Surely it cannot justly be said that a person who has passed the examination in medicine, surgery, and midwifery at the Society of Apothecaries desires to assume an unearned title when he wishes to be registered as Licentiate in Medicine, Surgery, and Midwifery of that society. I do not know to what he referred when he said "they constantly heard that people who had passed a certain examination were quite as good as those who had studied at the University and who had the degree of doctor." The remark does not appear to be relevant to the subject of our petition.

I am, Sirs, your faithfully,

A. RIVERS-WILLSON,

Oxford, May 30th, 1905. Chairman of the Petition Committee.

## CHILDREN'S COUNTRY HOLIDAYS FUND.

*To the Editors of* THE LANCET.

SIRS,—May we call the attention of your readers to the needs of the Children's Country Holidays Fund, which sends poor children into the country for a fortnight during their summer holidays? In most of our London schools the fund has now become an institution. Parents and teachers recognise from different points of view the beneficial effects upon the children of a fortnight's residence in the country at a time when even to older persons the heat of London is oppressive. It is hardly too much to say that the Children's Country Holidays Fund has indicated one of the methods by which there is best hope of preventing that deterioration in the physique of our town population, of which the public has lately heard so much. In 1903 the fund sent away 34,000 children and in 1904 over 39,000. The increase in numbers shows that a real demand exists for its services and that it possesses the organisation by which that demand can be met. Only the money is lacking. We hope that when the public realise the work that is being done by the Children's Country Holidays Fund sufficient help will be forthcoming to allow of its maintaining and extending its operations. The address of the fund is 18, Buckingham-street, Strand, and the honorary treasurer is the Earl of Arran.

We are, Sirs, yours faithfully,

ALFRED LYTTELTON, } Trustees of the Children's
W. F. D. SMITH, } Country Holidays Fund.

Buckingham-street, Strand, W.C., June 3rd, 1905.

## A PLEA FOR THE MORE GENERAL USE OF TUBERCULIN.

*To the Editors of* THE LANCET.

SIRS,—In reference to your annotation in THE LANCET of June 3rd, p. 1526, I feel convinced that many medical men who have used tuberculin will agree that a plea for its more extensive use in tuberculous affections will be a step in the right direction. There is no doubt, as you suggest, that a careful consideration and a thorough re-investigation would be the means of placing tuberculin in a position that it so much deserves. In the minds of those who have constantly used tuberculin there can be but little hesitation in giving a verdict as to its efficacy in lupus vulgaris, tuberculosis cutis, lung, and other forms of tuberculous mischief. I have used this remedy since its first discovery and have not had reason to lose faith in it or be disappointed with the good results achieved by means of its aid.

I could quote various cases of tuberculous ulcers having been permanently healed by this remedy when apparently everything else had failed and such a remedy should not be allowed to become obsolete without a thorough and impartial trial. Trusting your annotation will be the means of again bringing this remedy into prominence,

I am, Sirs, yours faithfully,

C. STANSER BOWKER.

Pontnewydd, Newport, Mon., June 6th, 1905.

## RED RUBBER: ITS POSSIBLE CONNEXION WITH APPENDICITIS AND OTHER INTESTINAL DISORDERS.

*To the Editors of* THE LANCET.

SIRS,—A few notes I have made on this subject may be of interest to your readers. Not long since, at 10 P.M., I called in a shop kept by one of my patients to make a small purchase. Behind the counter was a young girl whom I knew well as a patient and I was surprised to see her looking so ill. She presented a picture of perfect depression. I mentioned the fact to her and she confirmed my observation, saying that she had felt very relaxed and depressed for the last two days and that she was getting worse. Her pulse was scarcely to be felt, she was pale, heavy-eyed, with cold and clammy hands. At 1 A.M., three hours after I was talking to her, I was summoned to her house to see her. I went and found her suffering from a very acute appendicitis. There was no pain felt prior to 1 A.M. She was removed to hospital next day and soon operated on for the removal of the appendix. This case gave me the idea that the cause of appendicitis was probably a something which produced first of all a general depression, that either the depression or that something causing the depression was the cause of appendicitis. On asking myself the question as to what the something could be my mind became riveted on antimony after dismissing other agents for the want of collateral symptoms. Then another question presented itself as to the source of the antimony. I learned from the girl's aunt, with whom she lived, that she was accustomed to drink daily about half a dozen bottles of non-intoxicating drinks which she bought from a shop next door. I also found that she was the only one out of a family of nine who drank these drinks; she was the only one in the household ever attacked by appendicitis. This occurrence led me to retrace my steps to many of my patients who had been victims of this dire complaint and I learnt from those I revisited—nine in all—that they also had been drinkers of non-intoxicating drinks from bottles fitted with red rubber rings. That this red rubber contains antimony there is no doubt. I have tested several pieces myself. It is insoluble in all solvents of raw rubber and gutta-percha. To confirm my test I took a dozen of these red rubber bottle rings to Mr. R. C. Cowley, Ph.C., analytical chemist, Principal of the Liverpool School of Pharmacy, and in a week I received the following letter:—

DEAR MR. POND,—I have by means of an alkali extracted sulphide of antimony from the rubber rings you left with me last week. I have very little doubt but that alkaline waters and those containing organic acids would have a solvent action on the antimony in the rubber, particularly after the rubber has been worn and its surface roughened. I think it is sufficiently demonstrated that rubber vulcanised by sulphide of antimony (red rubber) should never be used as fittings for aerated waters on account of the strong solvent action of alkalies and organic acids on sulphide of antimony.

I am, yours very truly,

May 7th. R. C. COWLEY.

After receiving this letter I sent an expert in the rubber trade samples of these red rubber rings, asking him if he would kindly let me know their composition. His reply is somewhat astounding:—

May 11th.

These samples probably contain the following ingredients in this proportion: 20 pounds of rubber, 12 pounds of antimony (sulphide), five pounds of red zinc oxide, one-eighth of a pound of sulphur, and a quarter of a pound of lime.

The composition, you will note, of these red rubber rings contains not much less than one-third its weight of antimony. These red rubber rings are gradually worn down in the process of use from one-eighth of an inch in thickness to the thinness of paper, with jagged edges, and by age present innumerable cracks and become brittle. The small particles of red rubber fall into the bottles and are swallowed with the drink. I have found several particles at the bottom of beer bottles. Beer bottles and non-intoxicating drink bottles are not the only places where these red rubber rings are found. They are in syphons, sparklets, certain pickle bottles, jelly and preserved fruit bottles, &c. I have just taken from the stoppers of two beer bottles the red rubber rings. One is comparatively new, with only a slightly compressed edge but already chipped; the other is much worn as described above. These two rings are the same size in depth, thickness at unworn or upper edge, and circumference. The new one weighs 28 grains, the old one only 19 grains, due to the thinning or wearing away of its lower edge. The difference represents nine grains or its equivalent—namely, nearly three grains of sulphide of antimony.

Now a few words about the probable action. The pieces of rubber are swallowed as a rule at meal time, when the stomach is full of food, and in the process of digestion I take it the antimony is slowly separated from the rubber, is slowly absorbed, and when absorbed produces its secondary action—namely, that of depression and especially as a powerful depressant of the muscle fibre of the stomach and intestines. Now, we have two factors which together are capable of producing appendicitis: (1) a relaxed muscle fibre of bowel with partial or complete paralysis of the circular muscle fibres at the orifice of the appendix; and (2) a loaded bowel (cæcum).

Now under such conditions a slight movement of the body, such as stooping or straining, or a flow of fæces through the ileo-cæcal valve into an already overloaded cæcum deprived of its muscular contractility, is sufficient

to press anything in the neighbourhood of the appendix, on account of its relaxed muscular coat, into its blind canal. Again, we know that ingested antimony is excreted by the skin, kidneys, and all mucous surfaces and that this tends to inflammation of these surfaces; therefore if antimony is being excreted by the mucous membrane in or in the neighbourhood of the appendix the mucous membrane would be in such a condition as to inflame readily on the slightest excitation. I have also noticed that the majority of my patients who have suffered from appendicitis have been seized by the initial pain when in the recumbent position. I do not imagine that one ordinary bottle would produce any noticeable evil results even to the keenest observers, but to produce the results about which I am writing these small doses must be frequently repeated over a length of time and the properties of the antimony must be accumulative. Nor do I believe that every case of appendicitis is produced in this way, but my idea is that antimony is directly or indirectly the cause of a very large number of them.

Another set of cases in which, in my opinion, antimony plays a very important part is the dilated stomachs. These cases are by far more numerous than they were in former years. During the last few years I have met several with the lower border two or more inches below the umbilicus in strong athletic young men and in otherwise healthy girls. In all cases they have been drinkers out of bottles with red rubber fittings. I take it that the frequently repeated small doses of antimony depress and weaken the muscular coat of the stomach, and by filling a stomach in such a condition two or three times a day with food the weight of the food will gradually stretch its walls in their weakened state beyond the limit of active recontraction.

Again, I have formed the idea from observations made in my practice that antimony from the same source is responsible for a class of cases now known as "gastric ulcers devoid of the classical symptom of vomiting." I have had many of these cases pass through my practice during the last few years and I am sorry to say their numbers are increasing. I find these patients also are imbibers of non-intoxicating drinks from bottles fitted with red rubber rings. The muscle fibre of the stomach, I take it, is depressed by frequent small doses of antimony, the depression of the muscle fibre would account for the absence of vomiting, and if the mucous membrane was excreting any of the ingested antimony an inflamed area due to this excretion might form the commencement of an ulcer.

Another case of interest and on account of its connexion with antimony deserves to be mentioned—a case of chronic constipation. This case points rather markedly to the action of antimony relaxing and depressing the muscle fibres of the bowels. A lady sent for me one morning with the message to bring my bag as her maid was about to be confined. I went; the mistress met me at the door and told me that she had noticed her maid increasing in size for some time past and that now she was unable to get up and the pains had come on. I was shown to the girl's room. At first sight I had not the slightest doubt but that the girl was carrying a nine months fœtus. On examination I found there was no pregnancy but the swelling was entirely due to an enormous collection of fæces. She was taken to hospital. I heard from her mistress that she was there more than three weeks before she got rid of the original collection. Her mistress had some time since forbidden her to take beer and had in its place supplied her with non-intoxicants in screw-stoppered bottles.

In conclusion, I have endeavoured to show that the result of this ingestion of antimony may lead to: (*a*) a weakening of the muscular coats of the cæcum and vermiform appendix and the resulting appendicitis; (*b*) weakening of the muscular coats of the stomach and dilation of the stomach; (*c*) irritation of the mucous membrane of the stomach and intestines and thereby some cases of gastric and intestinal ulcers; and (*d*) weakening of the muscular coat of the intestines and some cases of chronic constipation.

I am well aware that the views here stated are open to ready criticism and that much investigation has yet to be made, but I put them forward as being a new and a quite possible cause of some of these alimentary disorders, the etiology of which has puzzled and is still puzzling the medical world. Moreover, it is very important that the dangers which may accrue from red rubber should at once become fully recognised.—I am, Sirs, yours faithfully,

F. A. POND, M.R.C.S. Eng., L.R.C.P. Lond.

Upper Parliament-street, Liverpool, June 5th, 1905.

# THE GROWTH OF CANCER.

*To the Editors of* THE LANCET.

SIRS,—The proposition to be discussed is that a somatic cell may undergo functional involution or the converse of physiological evolution and in so doing may resume the characters of the primitive cell or unicellular organism and that a colony of such cells forms what is termed a tumour. The growth of cancer is not merely limitless but, as many observers have noted, the tumour has no nerves, while the cells seem to be relatively independent of their host. The limit to cell reproduction appears to be only conditioned by the nutrient medium. If nature be her own interpreter, in strictness the problem should be looked at from the inductive aspect and the growth of cancer should be compared with cells having limitless growth and an independent existence with no nervous system. The protozoa fulfil these conditions and Weismann, impressed by the vast reproduction of the lower kinds, credited them with immortality. Clinically, the evidence is strong in favour of tumour cells having lost their normal function. A malignant tumour may flourish while all the other tissues are wasting; a fatty tumour may grow while the body-fat steadily decreases; in old people a cancer may arise while the organs are undergoing involution. Chemically, Blumenthal finds that the substance of cancer cells differs from that of somatic cells and that substances are present in cancer cells not found hitherto in the healthy body, while there is an intracellular ferment able to digest the albumin of its own cells and also the cells of the body. This is evidence that cancer cells have not the same function as somatic cells but is no proof that therefore they must be germ cells. The effect of erysipelas on malignant growths when cancer cells have been seen to undergo destruction by cocci suggests a comparison with infection in the protozoa and the struggle between the parasite and the host portrayed by Metchnikoff.[1] In this struggle the intracellular digestion of the protozoon plays a leading part. Further, the coccidium found by Pfeiffer and other observers in cancer when the parasite grows at the expense of the cell is capable of a similar explanation.

From the aspect of reproduction the analogy between tumour cells and the cell communities or colonies still found in the infusoria and rhizopods would seem to be even closer. Most of the forms of cell division found in tumours have been noted in protozoa and the cancer cell might be termed the analogue of the protozoon. Heterotype mitosis might be compared with the following.[2] "The unicellular animals or protozoa, having obviously no body, are directly comparable to the sex cells of the higher animals. The body is the addition which makes the difference. In a few protozoa, however, the results of the division of a unit remain associated together and a loose colony of cells arises. Such a protozoon is like an ovum or like a primitive male cell in any of the higher animals. The loose colony may be very unstable and may soon resolve itself into its component parts exactly as the primitive male cell, which has divided into a clump of spermatozoa, breaks up and sets these active units free. But the colony may be more stable and retain its continuity (like a segmented ovum), thus bridging the gulf between unicellular and multicellular organisms. In such cases certain cells are set apart as reproductive and eventually set adrift to form a fresh colony. This is the beginning of the differentiation of special reproductive cells." Wilson says:[3] "Mitotic division has now been observed in many of the main divisions of the protozoa and unicellular plants. In some of the gregarines and heliozoa the process is of nearly or quite the same type as in the metazoa."

Amitosis is very rare in the higher plants and animals and cytologists think it is a forerunner of degeneration, whereas it is fairly common both in pathological growths and unicellular organisms. A clear instance where a cell having lost its normal function involves to a more primitive type is seen when a fat cell undergoes atrophy: the fat slowly vanishes and the cell becomes connective tissue and this in turn may organise into fibrous tissue. Involution is a phase of life, a lessened functional activity termed by Canstatt senile involution.[4] The highly specialised

[1] Metchnikoff: Comparative Pathology of Inflammation.
[2] Article on Embryology, Chambers's Encyclopædia, 1895 edition.
[3] Wilson: The Cell in Development and Inheritance, 1904 edition.
[4] Boy-Teissier: Old Age, Twentieth Century Practice of Medicine, 1897 edition.

cells gradually lose their function, their place is taken by connective tissue, and sclerosis, especially arterio-sclerosis, initiates a vicious and involuting spiral. In man involution is not always physiological—diseases such as alcoholism, syphilis, gout, and chronic tuberculosis or aberrations of function, such as chronic constipation or overfeeding, all tend to hasten arterio-sclerosis. Involution is a frequent herald of cancer because the cell has lost its function, it is no longer a specialist, it is, in fact, though not always in form, less differentiated and hence tends to resume the exuberant growth of the blastoderm, asexual trophoblast, unorganised cell, or primitive protoplasm. Irritation and inflammation as a harbinger of cancer have been noted in many animals, while comparisons have been made from the over-functioning due to an effort at repair and from the similar method of cell division as seen in chronic superficial glossitis; but the essential difference would seem to be that in the one case the proliferating cells have retained their function, while in the other case their function has been lost.

There is, however, another aspect of the problem. May we think that the presence of nerves in metazoa acts like a brake or check on cell production? or, to put it another way, Does the energy used for the nerve tissue withdraw the stimulus from the lower tissues? As the nervous system gets more specialised in the animal kingdom, so reproduction of species which, as we have seen, is comparable to cell division in unicellular organisms, gets less active and in advanced civilisation may result in sterility; conversely in poor or impaired nutrition, as seen in tuberculosis, fruitfulness has long been remarked. Clinically a neuroma composed of true nerve tissue is very rare, whereas many tumours have been recorded as a sequel to disease or injury of the nervous system. Campana has found changes in nerve trunks adjacent to certain sarcomata. Mr. G. L. Cheatle[8] emphasises the apparent relations between carcinoma and nerve and trophic areas. If we think of nerve and epithelium, which both arise in metazoa from the ectoderm or epiblast, as two diverging lines it is conceivable as the nervous system gets more highly specialised it would be more liable to get out of order and so lose control over the epithelial cell. Owing to lessened function the nerve cell has probably neither the time nor the ability to keep pace with the epithelial cell which from irritation proliferates rapidly and finally frees itself from nerve influence. The presence of nerves in cases of certain slow-growing fibro-myomata lends support to this view. To recapitulate, the hypothesis put forward might aptly be described as involution. From the limitless growth and absence of nerves a malignant tumour should be classed as a cœnobium of protozoa. Just as an old man may become childish or an organ undergo involution, so may the cell undergo functional involution and resume the character of the primitive cell. It is like a palimpsest when the rubbed out writing reappears. A somatic cell has evolved from the general to the special; a tumour cell has involved from the special to the general. Cancer is rare in youth because the organs are not undergoing involution; on the other hand, sarcoma is common because the step down to the primitive cell is easy, while the embryonic connective tissue, like its host, is not educated to orderly conduct. Benign tumours would not grow so fast because the more organised the tissue the greater the step down to the primitive cell. Tumour cells are atypical because they have lost their function and the greater the loss of function the greater the loss of form. Irregular cancer cells accord with the law of parasitism when with a lessened necessity for earning a living and with difficulties in the way of reproduction, the organs of multiplication increase in size and complexity. Cartilage which has no nerves would not form tumours until the cells had lost their function; though the absence of arteries would doubtless have some influence. The rate of growth of a tumour is proportional to the growth-rate of the tissue from which it arises, and other things being equal the more highly organised the tissue the slower the rate of growth. A sudden loss of function may cause atrophy of the growth as seen in mammary cancer when the breast atrophies after oöphorectomy; and over-functioning also may cause a temporary shrinkage as seen at times after thyroid administration. The absence of nuclei in some cancer cells suggests the most primitive protoplasm and they would seem to be a lower type than embryonal tissue, which has the potential to construct or to organise. Gemmation or budding occurs in primitive cells and this may explain metastases in tumours. Spores are found in primitive cells and this may account for the cell rests of cancer. The inability of transplanted cancers to grow in the tissues of another species and not always in those of the same species implies a nutritional factor in tumour formation. The record of many cases of spontaneous cure of cancer holds out the hope that a remedy will be found if the line of research includes pre-cancerous and post-cancerous conditions.

I am, Sirs, yours faithfully,

ARTHUR C. WILSON, M.B., Ch. B. Vict.

Formby, June 6th, 1905.

[8] Brit. Med. Jour., April, 1903, and 1905.

## CHOLERA, PLAGUE, AND OTHER DISEASES IN THE NEAR EAST.

(FROM THE BRITISH DELEGATE ON THE OTTOMAN BOARD OF HEALTH.)

THE cholera epidemic which had prevailed for nearly a twelvemonth in Persia appears to have come to an end. A telegram received in Constantinople at the end of April states that no case had been known to occur in any part of the country since Feb. 25th. A final report on the epidemic has recently been received by the Constantinople Board of Health from its representative on the Tehran Board of Health. Most of the facts contained in this report have already been made known to readers of THE LANCET in my previous letters but the report in question throws fresh light upon some points of interest. The epidemic is described as spreading by two main routes from the Shiah city of Kerbela, one route passing northwards and eastwards through Bagdad and Kermanshah to Tehran and Eastern Persia, and the other southwards to Basra and the shores of the Persian Gulf. The spread of the disease by the first route was clearly traced to certain caravans of pilgrims returning from the burying grounds of Kerbela. One large caravan in particular, composed of several thousand persons, brought the infection to Kermanshah, which was, however, already infected by other caravans as early as March, thence to Kengaver (about April 22nd), where it forced the sanitary cordon and took the disease to Feraspai (April 24th), to Devlet-a-bad (April 26th), to Kum (about May 15th), and finally to Tehran. Another group of pilgrims from Ghilan escaped the sanitary cordons, and passing by unguarded mountain roads brought the disease to Sangor, whence it passed to Keboutraheng and so to Hamadan and many villages near. Sultanabad was infected from Devlet-a-bad; the last-named town acted as a centre from which the following places obtained the infection: Mahallah (June 1st), Kashan (June 20th), Ispahan (July 9th), Shiraz (June 18th), and Yezd (Sept. 12th). From Tehran the disease spread in all directions and it is impossible to follow its course in detail. Kazvin was attacked about the end of July, Resht and Enzeli on August 1st or 2nd, Amol, Meshed-i-sar, and the Mazanderan province about July 15th. Khorassan was slowly invaded by the disease; it appeared in Shahroud on June 24th, in Sabzevar July 15th, and Meshed July 25th. In a northerly direction the march of the epidemic was also slow; Zendjan was not infected until August 28th; thence the disease was carried to Maragha by a body of artillerymen; and from Maragha it spread to Tabriz, where as already related, it caused a most intense outbreak. The southern branch of the epidemic passed from Basra to Mohamera in June. Some time later it appeared in villages on the lower reaches of the Roud-Hillai. On June 28th it reached Kazerun and on June 18th was in Shiraz. Early in July it was present in the suburbs of Bushire. Following the course of the river Karun cholera appeared in Dizful and Shuster on July 13th. Finally some of the islands of the Persian Gulf were invaded by the disease and ultimately the whole of the Persian coast is said to have been infected as far as the frontiers of Beluchistan. Kerman obtained the infection by means of pilgrims coming from Meshed about Oct. 23rd.

It will be observed that in this epidemic, as on so many

previous occasions, pilgrims have been the principal means of diffusing the disease. The measures taken to check its spread seem to have been of little use. On the appearance of cholera in Kermanshah at the end of March nine days' quarantine was established at Kasré-Shirin on the frontier and an observation post on either side of Kermanshah itself. There were no trained staff and no means of disinfection at any of these points, and, as shown above, the sanitary cordons were easily broken through. When the disease had reached Kum the Persian Government ordered quarantine to be established at points between Kum and Tehran, between Hamadan and Tehran, and to the north of Keboutraheng. Many other important roads were left entirely unguarded or were only guarded when the disease had already spread by them. When the cholera broke out in Tehran some attempt was made to protect the road to Mesbed by establishing quarantine at Shahroud, but it was already too late, and the whole of the Khorassan province was sooner or later invaded. It was from this province that the infection passed over the Russian frontier by the much-frequented road between Mesbed and Askhabad, and this in spite of the measures imposed at Sarakhs on the frontier. To protect Ghilan (in the direction of Southern Russia and Europe) the Customs Administration—by which most of the protective measures were executed—established two quarantine posts, one at Mendjil and the other at Enzeli. Both are said to have been undermanned and insufficiently equipped. Similar measures were adopted in Southern Persia. The road from Bushire to Shiraz was cordoned and other precautions were taken, but here, as elsewhere, they came mostly too late and were imperfect both in conception and execution. In the towns themselves it is the same story. There were no trained men already existing and no sanitary organisation of any kind and the attempt to improvise them when cholera had already broken out was found to be impossible. At some places, as at Kermanshah, where funds were adequate and where foreign assistance from the consular medical officers was available, there was opposition on the part of the people who accused the foreigners of spreading the disease by poisoning the waters "with a white powder" and even popular risings took place which made all measures impossible.

One means by which the infection was spread was the objectionable custom which appears to obtain in Persia of washing the bodies of the dead in the public baths!

One result of the epidemic in Tehran was the revival of the board of health in that city. It has since held regular meetings, the minutes of which are now printed. On the initiative of the Customs Administration a public subscription was opened and ambulances were established. The "Nasseri" ambulance and that of the Sisters of Charity of Vincent de Paul did particularly good work. A system of burial of the dead and of removing the sick was organised and numbers of bodies were removed from the streets and public places where they had been abandoned. An immense plot of land was bought to serve as a cemetery and efforts (not altogether successful) were made to insure burial of the bodies at a proper depth from the surface.

The epidemic appears to have added little or nothing to our knowledge of the pathology or treatment of cholera. Owing to popular prejudice necropsies were impossible. Most of the cases were of a severe form; relapses occurred in a few instances and were nearly always followed by death. Nothing is said as to the case mortality of the epidemic and no doubt the means of ascertaining it were unobtainable. The total mortality in Tehran was rather less than in the great epidemic of 1892. In that year the population of the city was put at 200,000, of whom about 20,000 died from the disease; in the present epidemic the population was reckoned at about 260,000, of whom some 17,000 are thought to have died. These figures are in any case only approximate; some estimated the cholera mortality at the enormous figure of 75,000, others at only 5000. But these were mere guesses; the mortality of 17,000 is based on a control of the numbers of the dead buried at the cemeteries and of the bodies washed in the public mortuaries, and also on the fact that a mason engaged by the governor of the city to cover in the graves with clay and lime sent in a bill for covering rather more than 16,000 graves. To this must be added some hundreds already covered in by the relatives, others carried to distant burying grounds, about 100 Jews, about 50 Armenians, and about 30 Fire-Worshipers. The total of 17,000 may consequently be accepted as fairly correct. The cholera mortality in the whole of Persia is reckoned at between 250,000 and 300,000, distributed as follows:—

| | | | |
|---|---|---|---|
| Kermanshah | 13,000 | Khorassan | 13,000 |
| Hamadan | 15,000 | Ispahan | 16,000 |
| Arak | 10,000 | Shiraz | 30,000 |
| Malayer-Tousserkan | 7,000 | Arabistan | 22,000 |
| Kum | 10,000 | Azerbaijan | 30,000 |
| Tehran | 26,000 | Kerman | 16,000 |
| Kasvin | 8,000 | Other provinces | 30,000 |
| Ghilan | 14,000 | | |
| Mazanderan | 12,000 | Total | 272,000 |

It will be observed that the figures for Tehran given in this table (which is quoted from the report as it stands) differ from those just given (from the same report) above. There are some other discrepancies, to which it is unnecessary to refer, in an otherwise excellent report.

A few words are added as to the lack of all sanitary arrangements in Persia. The conditions described are but too familiar elsewhere. The drinking water is brought in open channels in which people also wash their linen, bathe, and even water their cattle. A dead beast may occasionally be thrown into them. Excreta are received in deep wells, which slowly fill, and are then covered in. The soil is polluted with fæcal matter for a wide distance around. It is unnecessary to dwell on the other conditions described.

The cholera epidemic in Russia came to an end in February last. The rumours of its presence in some parts of the country in April, which appeared in the English and other papers, have been contradicted by the Russian Government in an official statement issued last month. In this statement it is declared that no case of cholera had occurred in any part of Russia since Feb. 11th (24th New Style). A suspected case occurred in the village of Bataisk, in the Don territory, on March 12th (25th), but bacteriologically it proved not to be a case of cholera. The Russian Government also states that at the end of last year it declared the following regions "threatened" with cholera: the shores of the Caspian, the governments of Astrakhan, Saratof, Simbirsk, Kazan, and Nijni-Novgorod, the provinces of Transcaspia, Samarkand, Ferghana, and Syr-Daria, the Russian settlements in the suzerainties of Bokhara and Khiva, the Uralsk province, the Don territory, and the governments of Perm, Ufa, Stavropol, Orenburg, Viatka, Tiflis, Elisavetpol, and Baku. On March 13th (26th) the governments of Yaroslavl, Kostroma, Vladimir, and Tver, all on the upper Volga, were added to the list, and those of Moscow, Tambof, and Riazan, although not declared to be "threatened," were ordered to prepare for a possible epidemic by opening "observation points" along the river.

The outbreak of plague in Aden has rapidly subsided, as shown by the following figures;—

| | | | |
|---|---|---|---|
| Week ending March 25th | 41 cases | 32 deaths. |
| ,, April 1st | 32 ,, | 30 ,, |
| ,, ,, 8th | 13 ,, | 12 ,, |
| ,, ,, 15th | 5 ,, | 3 ,, |
| ,, ,, 22nd | 4 ,, | 4 ,, |
| ,, ,, 29th | 14 ,, | 8 ,, |
| ,, May 6th | 6 ,, | 4 ,, |

Two cases of epidemic cerebro-spinal meningitis have recently occurred in this city. Neither of the patients had been anywhere outside Constantinople for a considerable period. In both the diplococcus of Weichselbaum has been found in the cerebro-spinal fluid. One case has proved fatal, the other is recovering.

Both plague and typhus fever have appeared in the Assyr province of Arabia. A telegram dated March 20th reported that the outbreak of typhus fever had already led to over 80 deaths in the Beni-Sheir district of Assyr. It was added that there was no doubt as to the diagnosis and that the disease was not the plague—which had long been endemic in this region. On March 29th a second telegram reported the occurrence in the same region of three cases of endemic plague, of which one had proved fatal.

The outbreak of typhus fever in the Vladimir government of Russia, mentioned in my last letter, spread to Moscow. On March 12th (25th) there were already 30 cases of the disease in the Moscow hospitals.

Constantinople, May 13th.

## MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

*Dr. J. Dreschfeld's Retirement.*

ON May 29th the board of management of the Manchester Royal Infirmary received a letter from Dr. Dreschfeld in which he stated that having reached the prescribed age at which he had to retire from the honorary staff of the infirmary his services as physician would cease on Sept. 30th. The board, while accepting the resignation, recorded its high appreciation of Dr. Dreschfeld's distinguished ability and the value of the services which he had so long rendered to the institution and its deep regret that the term of his services approached its close. Dr. A. T. Wilkinson, the senior assistant physician, will now become full physician. It often seems a misfortune that a brilliant and useful career in the service of a great hospital has to close when the judgment is at its ripest and the mental powers are vigorous and acute.

*Infirmary Appointments.*

At the same meeting the following appointments were also approved:—House physicians: Dr. E. M. Wilkins, Dr. W. H. Hey, Mr. P. R. Wrigley, Mr. C. Roberts, Dr. G. D. Dawson, and Dr. J. Smalley. House surgeons: Dr. H. Mackenzie and Mr. T. M. Hughes. Medical officer for home patients: Dr. George Ashton. The board also approved of the recommendation of the clinical laboratory committee to appoint an electrician to deal with radiography at a salary of £35 a year and that the medical director of the laboratory should have a salary of £200 a year. The chairman, Mr. W. Cobbett, stated that the change was necessary, as the clinical laboratory was said to be in an unsatisfactory condition. Medical assistance was required and also the help of a good electrician.

*The Infirmary and the Ear Hospital.*

At the same meeting also the chairman reminded the board that he and Mr. Charles Hopkinson had been instructed to see Dr. W. Milligan with respect to the new Ear Hospital, the erection of which has for some time been under consideration. The question was whether there should be special facilities in the new infirmary for dealing with aural cases. After communicating with Dr. Milligan they had come prepared to submit the following motion, which Mr. Hopkinson accordingly moved:—

> That, provided a new hospital for aural cases be built on the site approved by this board in close proximity to the new infirmary and opened on or before Dec. 31st, 1906, this board will not allocate any special wards or beds in the new infirmary to aural cases so long as adequate facilities for aural cases and for instruction thereon be maintained in the new Ear Hospital.

This was carried unanimously.

*Infirmary and University.*

As the result of an interview between a subcommittee of the infirmary board and representatives of the university, held on May 16th, it was recommended that a professor of pathology at the university be appointed on the honorary staff of the infirmary and that towards the expenses incurred by the university in maintaining the pathological department the infirmary should pay a contribution of £125, the arrangement to be terminable either by the university or the infirmary by giving six months' notice. These various changes tried to bring about more intimate relations between the infirmary and the university, to the advantage, no doubt, of both. In days gone by a state of more or less friction was not an unusual condition between the infirmary and the Owens College, perhaps arising from undue sensitiveness on the part of the older institution of what seemed to be the somewhat youthful, and perhaps the slightly imperious, self-assertion of a junior. In these latter days there is no doubt a greater display of sweet reasonableness on both sides.

*Progress of the New Infirmary.*

The board was informed by the clerk of the works that 260 workmen were now engaged on the foundations at the Stanley Grove site. There have been no serious difficulties experienced with the ground so far, nor have any interesting geological finds been made, as, e.g., that of the huge boulder now occupying a prominent position in the quadrangle of the College. The only discovery hitherto has been the skeleton of a horse in a spot which evidently marked the position of an old pond.

*Manchester and Salford Sanitary Association: Lamp Explosions.*

It may perhaps be remembered that for several years past Mr. William Thomson, F.C.S., has conducted an investigation into the causes of lamp explosions in Manchester and Salford. The police have obtained the burners of the lamps used and, when possible, samples of the oil used. These and such particulars in each case as have been reported to the chief constable have been supplied to Mr. Thomson. At the last meeting of the committee, Professor J. Dixon Mann presiding, Mr. Thomson presented a report covering two years, in which it was stated that no lamp, to the knowledge of the police, had exploded in Manchester during the last eight months and none in Salford for two years and eight months. As is well known, these explosions may be considered from two points of view, the construction of the lamp and the quality of the oil, and there has sometimes been a tendency to attach importance to one to the exclusion of the other, while both may be factors in causing the explosion. It appears that eight lamps exploded in Manchester in 1903-04 and of these "five were of an old type of burner with a side tube running down the side of the wick-tube and communicating with the inside of the reservoir of the lamp, the top being in contact with the flame." The manufacturer of such burners, at Mr. Thomson's suggestion, ceased to make them several years ago and it is possible that the disuse of this dangerous burner has lessened the number of explosions. As regards the oils used, recent investigations confirm former ones as to the fact "that Russian oil was more liable to cause explosions than American 'low-flash' oil. No record of Scottish oil or 'high-flash' American oil having flash points of 100° F. or over had as yet been found among the oils which were alleged to have caused explosions."

*Treatment of Pauper Children.*

At a conference of the Women Guardians and Local Government Association for the Northern Counties, held in the Manchester town hall on June 1st, Miss Dendy presiding in the unavoidable absence of the president, the Countess of Carlisle, some interesting topics were discussed. One was the Boarding-out of Pauper Children. A paper was read on this subject by Miss B. W. Evans, an inspector of the Local Government Board. Speaking in a private capacity she admitted that at times the boarding-out system had grievously failed, though when well carried out it was one difficult to improve on. She gave some hints on the best methods of visiting and inspecting the homes and seeing to the general treatment of the children.

June 6th.

## LEEDS.

(FROM OUR OWN CORRESPONDENT.)

*Physical Development of Jewish and non-Jewish Children.*

THE work, which has now for some two years been carried on by Mr. William Hall, of feeding poor children at St. Peter's-square council school deserves attention, whether it is viewed from the philanthropic or from the experimental standpoint. In making an investigation some years ago into the physical conditions of children living in the slums of Leeds Mr. Hall became increasingly impressed by the inequality in physical development of Jewish and non-Jewish children, comparison being very markedly to the detriment of the latter, even when every care was taken that the comparison should be made under similar conditions as to age, degree of poverty, and character of residence. A systematic examination was made of some 3000 children and was conducted with the greatest care, with the result that Mr. Hall stated that the poor Jew was three pounds heavier and two inches taller than his non-Jewish brother at the age of eight years; these figures were six and a quarter pounds and two and a half inches at the age of ten, and at the age of 12 he was seven pounds heavier and one and a quarter inches taller. Bone formation was much more satisfactory in the case of the Jew, the teeth were very much better, and there was a striking absence of rickets; the nasal chamber was large, the palate was, as a rule, large and flat, and the children were remarkably free from adenoids and were nose breathers. In all these particulars the non-Jewish child of the same age was decidedly a sufferer by the comparison. This great variation Mr. Hall attributes chiefly to the difference in feeding

in the two cases. He maintains that the Jewess during her pregnancy is fed with greater care and does not have to take so large a share in working for the maintenance of the home. It is, indeed, a matter of conscience and religion to the Jew that his wife should be tenderly cared for during this period. The Jewess is consequently able to supply natural nourishment to her offspring in a larger percentage of instances than the non-Jewish. After the time for breast feeding has passed Mr. Hall finds that the feeding carried on by the Jews is more sensible, for the food is better and more abundant and is better cooked. The non-Jewish child of the slums he finds living in imminent risk of scorbutus, if not actually scorbutic, with spongy gums, and existing, it may be, on white bread, tea, badly cooked fish, or possibly on tinned meat and pickles. The Jewish women always secure good fish, clubbing together, it may be, to get it cheap; they use vegetables freely with this in preparing an admirable, attractive, nourishing, and antiscorbutic diet. Eggs, says Mr. Hall, they *will* secure for their children even if it should be necessary to keep on their humble premises a hen which, as he amusingly says, is *expected* to produce its daily egg. As evidence of the keen desire that their children should be well fed Mr. Hall notes that groups of Jewish mothers may be seen at the gates of the schools with food for their children to take during the intervals for play. Without in any way suggesting that hereditary predisposition, overcrowding, damp and cold, and impure atmospheric conditions may not be very important factors in relation to physical development, Mr. Hall was encouraged by the above noted considerations to try the effect of an improved dietary in the case of some of the half-starved and ill-developed scholars of one of the schools in the poorest parts of Leeds, selecting for this purpose the St. Peter's-square school. With the aid of some philanthropic friends he has made arrangements for 100 of the poorest of the children attending this school to get one good meal a day. Some initial expense was involved in the purchase of cooking utensils, plates, and basins. The coal cellar was utilised as a kitchen and provided with two large gas-stoves, a boiler for milk, and a chopper for bread. The food varies; on two days there is "pie meat," haricot beans, and potatoes; on another day there may be fish and rice pudding; on Fridays there are fried tripe and onions. The quality of everything is excellent and the supply abundant. The cooking is done by two women cooks who are assisted by four girls and two boys, who wash up and act as monitors, and it is pleasant to note that every encouragement is given by the head-master. The dinners cost about 2*d.* each and towards this about half of the children pay 3*d.* a week each. The effects have been very striking, for writing on Jan. 13th Mr. Hall was able to report as follows: "I weighed 55 children aged seven to eight years—28 boys and 27 girls—on Dec. 29th. I weighed them again, some to-day and some yesterday. They had gained altogether 63 pounds, or at the rate of about two stones each per annum." In accounting for this great and immediate increase Mr. Hall points out that the tissues of these half-starved children are, like those of convalescents from acute illnesses, ready to pick up nourishment with avidity. Together with the increase in weight the children have improved in general appearance and have lost their semi-scorbutic aspect, while, as might be expected, the kindness shown to them has resulted in an improvement in their manners and in their self-respect.

### *Leeds Public Dispensary.*

The board of management of the Leeds Public Dispensary has resolved to carry out an increase in that special part of the work of the institution which is concerned in the visiting of the patients at their own homes. Last year the number of visits made by the resident staff, who are mainly responsible for this part of the work, was 15,950. The area dealt with is divided into three districts and one resident officer visits in each district. For many years the large manufacturing districts of Hunslet and Holbeck have, with the exception of a small part of the former, been outside the area which was dealt with. It is now intended to add a large district south of the river Aire which will include the chief portions of Hunslet and Holbeck. This will, of course, necessitate the appointment of a fourth resident medical officer but it will greatly increase the usefulness of the charity in developing that very special function of the institution which, unless we include the visits of the Poor-law medical officers, is peculiar among the Leeds medical charities to the dispensary. There is, of course, in connexion with the dispensary a large out-patient department to which patients come from all over Leeds and from beyond its boundaries. Last year there were 71,813 attendances in the out-patient rooms and many of these patients come from south of the river. Those who are unable to attend will now be included within the visiting area and a great boon will be conferred on the district which has been added.

June 5th.

## WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

### *The Midwives Act in Denbighshire.*

THE Midwives Act is being administered in the county of Denbigh by the public health committee of the county council and when the question of appointing an administrative officer was recently being discussed by the committee, Mr. Richard Evans, a medical practitioner who is a member of the committee, was asked to draw up a list of the duties which would fall upon this official. The committee was compelled to call in the assistance of Mr. Evans owing to the county council not yet having thought fit to appoint a county medical officer of health. The list of duties submitted to the committee at its last meeting includes a quarterly visit to each midwife, inspection of her case-books and bag of appliances, reporting upon cases of malpraxis or breaches of the rules of the central board, keeping a register, reporting the death of a midwife, recording still-births, reporting upon cases of puerperal fever, and when desired by the committee giving elementary instruction to midwives. The county council has endorsed the recommendation of the committee to ask the medical officers of health in the county to administer the Act and to pay them for the inspection and supervision required a fee of 10*s.* 6*d.* per annum for each midwife living in the district concerned. The duties are to be those drawn up by Mr. Evans. The medical officers of health have not yet decided whether they will accept this fee which does not err on the side of generosity. Compared with the fees paid for similar duties in other counties it is distinctly mean. In Cheshire a fee of one and a half guineas and in Surrey a fee of one guinea is paid for similar duties to the district medical officers of health.

### *Typhoid Fever at Bridgend.*

In the town of Bridgend, which has a population of about 7000 persons, there have in recent years been several serious epidemics of typhoid fever. In 1899 there were 78 cases with 11 deaths and in the five subsequent years the cases have averaged 22 and the deaths three. During the first quarter of the present year there were 12 cases and two deaths and between the third week in May, when the present outbreak began, and June 1st, 29 cases were notified. Mr. Wyndham Randall, the medical officer of health, does not appear to think that there are any of the characteristic features which attend either a milk-borne or a water-borne epidemic and inclines to the opinion that the recent increase in the number of cases of the disease is due to the excessive dryness of the atmosphere, with the consequent blowing about of infected particles in dust. He has recommended the thorough watering not only of the main streets but of the back streets and bye-passages. In his report for 1904 he advised the council to provide covered iron receptacles for the removal of infected excreta, together with an incinerator for their destruction. It is possible that if his recommendation had been adopted the present epidemic would not have occurred and it is difficult to understand the refusal of the council even now to take this very proper and practical safeguard against the spread of the disease.

### *Schools and Infection.*

A short circular bearing the signature of Dr. J. Middleton Martin, the medical officer to the Gloucestershire education committee, has recently been issued to the school teachers of the county dealing with the question of infection among school children. The teachers are advised when there is reason to suspect that a child is suffering from an infectious disease to send him home at once with a written note to the parent requesting that the child should be seen by a medical practitioner and a report of the opinion so obtained sent to the

teacher. For this opinion it appears that the education committee is prepared to pay a fee of 1s. In connexion with school closure Dr. Martin points out that such a step taken in panic may do more harm than good because a valuable source of information as to suspected mild unrecognised cases is thus thrown away. Accompanying the circular is a leaflet giving some details with regard to the principal symptoms of infectious diseases and of contagious conditions which are liable to affect children. Included in the latter are scabies, ringworm, ophthalmia, impetigo contagiosa, and pediculosis. At a meeting of the Gloucestershire education committee held on May 27th it was resolved to request the Board of Education to amend Article 46 of the Elementary School Code of 1904 so as to provide that when an infant class and the lower standard were excluded from school attendance on account of infectious disease the "average attendance" of the children so excluded might be calculated separately from that of the older children. It was explained that that could be done by only considering the number of times the school had been open on their account, and not, as at present, the total number of times open, whether for infants or older children.

*Health Report of Gloucester.*

In his annual report for 1904 the former medical officer of health of the city of Gloucester (Dr. John Campbell) estimated the population of the city as 50,510 and recorded a death-rate of 14·8 per 1000 and an infantile mortality rate of 134 per 1000 births. The death-rate for pulmonary tuberculosis in 1904 was 0·9 per 1000. Dr. Campbell advocates the voluntary notification of cases of this disease and although he suggests the erection of wooden huts on the isolation hospital estate for the treatment of suitable cases he expresses the very distinct opinion that the prevention and cure of consumption are to be found in the creation of healthy homes and healthy surroundings for the people.

*The Medical Officer of Health of the Chipping Sodbury Rural District.*

At the meeting of the Chipping Sodbury rural district council held on May 31st a letter was read from the Local Government Board stating that it was not at present prepared to sanction the appointment of the gentleman nominated by the council as its medical officer of health in place of Dr. F. T. Bond. It was reported that the Gloucester rural district council, on the suggestion of the Local Government Board, had called a conference for June 19th of the district councils which form a combination for the appointment of a medical officer of health and had requested the Chipping Sodbury council to appoint a delegate. After a considerable discussion the latter council decided not to send a representative to the meeting.

June 5th.

## SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

*Royal Victoria Hospital for Consumption, Craigleith, Edinburgh.*

THE annual meeting of the friends and supporters of this institution was held on May 31st, when it was stated that from the date of opening of the hospital 988 patients had been under treatment in the hospital. In addition to these 133 "visitant" patients had been allowed to spend the whole day at the hospital, enjoying the *régime* and treatment and going home at night. The committee had arranged for a few contributing patients and the contribution had been fixed at a guinea per week and had also proposed to individual benefactors, heads of firms, and to smaller towns and communities a method of endowment by which a bed could be maintained within the hospital for a sum of £80 per annum, the contributor having the right of nomination to that bed throughout the year. It was also desired to establish an after-care colony and a first step had been taken in this direction. Since the date of opening 14,329 individual patients had received advice and treatment in the dispensary and out-patient department and a large number had been supervised at their own homes. The expenditure for the year had been £5774 and the income £4021. The three pavilions provided form but a small portion of the plan of the architects and with a view to extensions on the lines of the plan a great international fair will be held in the Waverley Market, Edinburgh, in November next, of which Her Majesty the Queen has consented to become patron and when it is hoped that a sum of £12,000 may be obtained. Especial gratification was shown at the extension of the King's patronage and for the grant of the title "Royal" to the hospital.

*Reconstruction of the Glasgow Royal Infirmary.*

A scheme for the rebuilding of this infirmary has been more or less prominently before the public for some years. The present structure is now hopelessly inadequate and antiquated and although it is with regret that one contemplates the demolition of the building in which Lister inaugurated his work in antiseptic surgery, yet all are agreed that the time has come when it is necessary to replace it by a building which will meet the requirements of present-day surgery and medicine. Some time ago the managers of the infirmary invited plans for the new building from ten architects and appointed Sir Rowand Anderson assessor. The designs were submitted in due course and a short leet of four was made up by the assessor, from which a final selection was made by him and recommended for adoption. The committee not only rejected it but went outside the entire short leet of four and chose a design which has not met with unanimous support from hospital experts. The Institute of Architects protested against the conduct of the competition and severely criticised the plan chosen. The main objections urged were (1) the distribution of the buildings on the site in such manner as to shut out the sun and air to almost the greatest extent possible so that many of the wards would be practically sunless during a great part of the year; (2) the height of the buildings, where, in the face of all the modern theory and practice of hospital design in limiting ward blocks to two, or at most three, storeys, those in the new buildings would be six storeys in height, the result either of inefficient planning or of a site inadequate for the accommodation required; and (3) the central halls and staircases from top to bottom of the ward blocks permitting free intercommunication of the air between the wards. The present building stands in Cathedral-square, in close proximity to the Cathedral, and it is proposed to erect the new building on the same site. In order to preserve the amenity of the Cathedral, which would be completely blanketed by the huge block of buildings proposed in the new plans, a committee has been formed, and its report, as it appeared in the *Glasgow Herald* of June 3rd, runs as follows:

The infirmary board have recently intimated that they propose to proceed shortly with the re-erection of the buildings according to the plans prepared and including ultimately the "Jubilee Block" on Cathedral-square. For some years past and pending this decision apprehensions have been generally felt, and at various times publicly expressed, regarding the injurious effect on the external appearance of the Cathedral which would be caused by the removal of the beautiful building by Robert Adam which at present groups so admirably with it and the substitution therefor of the building as proposed very much loftier and heavier in proportions. To guard if possible against such injury and to assist the public to an understanding of the possible result, a joint committee was formed representing the Glasgow Archæological Society, the Glasgow Institute of Architects, and the Art Club. The committee felt that the first essential was to have accurate data on which to base an opinion. By the courtesy of the board they have had access to the plans of the buildings intended and from these and measured drawings of the Cathedral, with measurements and levels between and about the existing and the proposed buildings, they have had drawings prepared. These drawings show respectively (1) the two buildings in elevation and side by side at the distance apart laterally at which they would actually be placed; and (2) an exact view in perspective from a point towards the north-west of Cathedral-square of the buildings as they would appear in relation to each other at that point. The drawings speak for themselves and show how the Cathedral is overpowered and injured by the huge pile proposed, six storeys and basement in height and with turret roofs and central spire overtopping the whole. The Cathedral is Glasgow's greatest adornment in architecture and is in many respects unique among buildings of its kind. That the citizens and all outside their number interested in this noble work of art should unite in saving it from the irretrievable injury proposed is the hope of the committee in publishing the drawings and issuing this appeal.

Another grievance has been raised in connexion with the reconstruction scheme and that is the proposal to use terra-cotta blocks instead of stone so far as the outer walls are concerned. The Master Masons' Association of Glasgow at a largely attended meeting protested against this proposal and sent a copy of the resolution to the managers of the infirmary. There is no doubt that the managers have a very difficult task before them, but it is felt that matters might have gone more smoothly had they taken the public more into their confidence.

June 6th.

# IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

### *Royal College of Surgeons in Ireland.*

AT a meeting of the Fellows held on June 5th the following were elected:—President: Mr. Arthur Chance. Vice-Aresident: Mr. Henry R. Swanzy. Honorary secretary: Sir Charles A. Cameron. Council: Mr. Edward H. Bennett, Mr. William Stoker, Sir Charles Cameron, Mr. John B. Story, Sir William Thomson, Sir Charles B. Ball, Sir Thomas Myles, Mr. John Lentaigne, Mr. Richard D. Parefoy, Sir Lambert H. Ormsby, Mr. Henry G. Sherlock, Mr. R. Bolton McCausland, Mr. John S. McArdle, Mr. Robert H. Woods, Mr. Thomas Donnelly, Mr. William Taylor, Mr. Edward H. Taylor, Mr. G. Jameson Johnston, and Mr. R. Charles B. Maunsell.

### *The Irish Medical Association.*

Notice has been received by the members of the Irish Medical Association of various motions which will be considered at the meeting to be held at Killarney on June 7th. The council recommends that Poor-law unions whose scales of salaries to their medical officers were accepted by the latter and approved by the Association shall be exempted from the rule passed at Enniskillen in June, 1903, fixing the minimum salary for dispensary officers at £200. That rigid regulation has proved a failure and it is time that it should be withdrawn. Dr. Donnelly is to make arrangements as to the next issue of the Irish Medical Directory. If this is done in a satisfactory way it will cause much expense which the Association cannot apparently well afford. The accounts show a credit balance of £90 7*s.* 5*d.*, but against this and the income for 1905 law costs estimated at £695 must be charged. As regards the famous report of Surgeon-General G. J. H. Evatt—the "fons malorum"—Mr. Arthur Chance, the President, made a statement at the annual meeting of the Fellows of the Royal College of Surgeons in Ireland held on June 3rd. He said that, referring to Surgeon-General Evatt's report, though portions of it had been published in the press the College was still unable to reply to the criticisms which had been made upon it, inasmuch as the report was still a confidential document. He appealed to the Irish Medical Association and other medical men throughout the country at once to make an effort to forget the differences which the publication of the report had caused and to work together in the cause of the profession.

### *The Holywood Foreshore Nuisance.*

A provisional order has been made by the Local Government Board appointing a joint board consisting of three representatives from Castlereagh rural council, three from Holywood urban council, six from Belfast council, and one nominated by the Local Government Board, who will have a casting vote and be practically chairman. The costs ordered to be contributed are, by Belfast corporation 85 per cent., and by the two other councils each 7½ per cent. Belfast corporation objects on two grounds—namely, (1) that it has not sufficient representation on the board, and (2) that it has to pay too much of the expenses. On fair consideration there is nothing in either of these pleas, for suppose the members of the two other councils united to squander public money for every £1000 raised Castlereagh council would have to pay ¾*d.* in the £, Holywood 1¼*d.*, and Belfast only one-sixth of a penny. The real object is to compel Belfast to make good the injury that it is inflicting, and has been inflicting for years, by discharging its unpurified sewage into Belfast Lough, the shores of which are in the districts of the Castlereagh and Holywood councils. Nearly seven years ago an influential deputation of residents in the affected areas waited on the city corporation complaining of the horrible nuisance and in 1899 by their opposition to a Bill being pushed forward by the Belfast corporation they compelled that body as a compromise to insert a clause binding themselves to purify the city sewage within three years. For two of these years the corporation did nothing and only in the third year did it carry out some preliminary works, while all the time owing to the erection of new houses the volume of additional sewage discharged into Belfast Lough was being increased. Until the new purification works for the bacterial treatment of the sewage are completed there will be no permanent relief for the affected area.

### *Queen's College, Belfast.*

At a meeting of subscribers to the Better Equipment Fund of Queen's College, Belfast, held on June 2nd, it was reported that the sum of £29,633 had been up to the present subscribed to the fund, which, with interest received, made the amount altogether £30,040 11*s.* A sum of £2093 remains subscribed, but not yet received. By the help of this fund the following additions to the equipment of the College have been made: a chair of pathology, a studentship in mathematics, a demonstratorship in pathology, a playing field for students, an organ, a lectureship in music, a library of music, a supply of radium, an assistant in botany, a lecturer in history, an assistant in modern languages, a biological laboratory, as well as minor grants in different departments. A motion was carried bringing under the notice of the Government the strong and increasing claims of Queen's College, Belfast, to more generous treatment by the State.

### *The Irish Medical Directory.*

The new Irish Medical Directory has occasioned so much discussion that it may interest readers to know some facts as to its origin and reception. It would appear that last year's President, Mr. R. F. Tobin, at the annual general meeting on June 7th, 1904, suggested the issuing of an Irish Medical Directory and the committee of council at its first meeting, June 22nd, 1904, proceeded to put this proposal into effect, according to the following minute: "The President brought under the notice of members the advisability of publishing, in the form of an annual directory, the names of all medical practitioners in Ireland, distinguishing members of the association in heavier type, and moved: 'That a grant of £15 be made towards the preliminary expenses of the directory.'" The motion was seconded and carried. The secretary being unable (owing to his onerous duties) to undertake the bringing out of the directory the editor consented to see it through. The work was well advanced when it was discovered that Messrs. Churchill would object to their work being used for purposes of compiling another directory. As a result, a complete change in the mode of procedure was necessitated. Circulars were sent to branch secretaries and to every member of the Irish Medical Association with the object of obtaining information of their qualifications, &c., and when forms were not filled information was taken from the Medical Register. It was not possible the first year to go to the same trouble and expense in the case of non-members. Advertisements were secured to lessen the cost. The original grant for preliminary expenses was £15, while the cost of printing and binding the original edition of 3000 copies was £118 14*s.* 6*d.* The postage was £22 5*s.* 10*d.*, while the advertisements secured £107 3*s.* 9*d.* Copies were sent to every member of the association. So much for the origin of this medical directory, but when it came to the hands of the profession it aroused a great deal of bitter criticism, because: (1) as might be expected, its get-up and appearance suggested want of oversight and care; (2) the printing of members of the Irish Medical Association in black type made an invidious distinction between them and other medical men not members of the association; (3) of these black-typed members a disproportionate amount of space was given to some in comparison with others; and (4) those who are not members of the association are printed without any notice except their name and address, and not the least reference is made to their appointments, qualifications, or publications. I am glad to know that at a meeting of the council of the Irish Medical Association, held on May 3rd, a motion was carried "that no further edition of the Irish Medical Directory be issued until it has in every detail received the approval of the council." I really think if the Irish Medical Association would simply publish in its journal the list of its members nothing more is needed—a medical directory limited to Ireland is of little or no use to anyone.

At a recent meeting of the governors of the City Hospital for Diseases of the Skin and Cancer, Dublin, Mr. Tobin, honorary surgeon to St. Vincent's Hospital, was unanimously elected consulting surgeon to the hospital in room of the late Sir Philip Crampton Smyly.

June 6th.

# PARIS.

(FROM OUR OWN CORRESPONDENT.)

*Subcutaneous Injection of "Sea Water Serum" in the Treatment of Tuberculosis.*

AT the meeting of the Academy of Medicine held on May 23rd M. Troisier read for M. L. Fournol a note upon the use of subcutaneous injections of sea water in cases of tuberculosis. Together with M. Barlerin M. Fournol had prepared a sea-water "serum" which raised the blood pressure (*serum marin hypertonique*) and he had tried this on 24 patients under the care of M. Landrieux at the Lariboisière Hospital. Some of them had pulmonary tuberculosis in an early stage and others had old-standing tuberculosis of the bones. A marked improvement, both general and local, was observed in all the twenty-four. M. Fournol's results were so encouraging that the Academy decided to send a note of them to the Tuberculosis Commission.

*The Galactagogue Properties of Lactagol.*

At the meeting of the Obstetrical Society held on May 18th M. Legrand drew attention to the galactagogue properties of lactagol. This substance is a powdery extract of cotton seed which contains the galactagogue active principle of this plant. It is insoluble in water but may be given in milk in doses of three or four teaspoonfuls per diem. Given thus it increases the secretion of milk in a marked degree. M. Legrand has observed cases in which the leaving off or resumption of the drug coincided with a diminution or increase in both the quantity and quality of the milk.

*Costal Pneumococcic Abscess bursting into the Bronchus.*

At a recent meeting of the Hospitals Medical Society M. Boidin showed a patient who had been under the care of M. Widal. While apparently in perfect health and without any history of injury he was suddenly attacked with acute pain over the anterior extremity of the second rib on the left side. Twelve hours later there was marked œdema of the supra- and sub-clavicular regions on the affected side. The œdema increased until at the end of ten days an abscess began to point in the axilla. The temperature ran up and the patient suddenly coughed up a large quantity of pus which contained virulent pneumococci in an almost pure culture. After this the swelling and the expectoration rapidly ceased. There was no other sign of pneumonia and the patient quickly recovered. The case was evidently one of pneumococcic costal abscess bursting into the bronchus. M. Boidin considered that the costal abscess was the primary lesion and not secondary to a purulent encysted pleurisy of the apex.

*Methods of Masking the Taste of Quinine.*

In Algeria, where large quantities of quinine are dispensed, the drug is not given in cachets or made up into pills on the score of economy. It is simply dispensed as a powder and the patient takes it in lemon juice. In the case of children, however, this method of dispensing it is impossible and at the meeting of the Therapeutical Society, which was held on May 24th, M. Yvon read some notes in which he said that he had endeavoured to mask the taste of quinine by keeping it away from the tongue. To do this he enveloped it in a fatty body. A small quantity of bicarbonate of sodium was added to neutralise the acids which might be present on the surface of the tongue and so dissolve a small quantity of the quinine. He takes 90 grammes of precipitated quinine and ten grammes of oil of sweet almonds dissolved in ether, and makes this into a paste to which are added a small quantity of alkali and some flavouring agent, such as lemon or mint. Quinine prepared thus can be swallowed quickly without any disagreeable taste and rhubarb can be made up in the same way.

*Useful Hygienic Measures.*

The Normandy Public Health Society has struggled for many years to make the Rouen Tramways Companies forbid their employés to separate the tickets distributed to passengers by moistening them with saliva. In Paris the tramway conductors on their own behalf have invented an ingenious plan which consists of using a pencil with a piece of indiarubber at one end to separate the tickets. They thus avoid spitting on their fingers, a custom which they consider is dirty.

*A Memorial to M. Tarnier.*

A memorial to M. Tarnier was unveiled on June 1st. M. Bienvenu-Martin, Minister of Public Instruction, presided at the ceremony and the memorial, which has been erected by public subscription, was handed over to the city of Paris by Professor Brouardel, acting on behalf of the committee of management. The memorial consists of a handsome portico surmounting a bust in high relief and connecting it with the hospital buildings, of which it will henceforth form a part. The portico was designed by an architect, M. Scellier of Gisors, and the bust is the work of M. Denys Puech. In the memorial, which was exhibited in the Salon of 1904, M. Tarnier is represented in hospital garb (blouse and apron) standing at the bedside of a newly delivered woman and holding the infant in his arms; part of a *couveuse* for the reception of prematurely born infants is shown at the side. The features of the master, seen in side-face, are admirably rendered, his meditative attitude being true to the life, and the sculptor has caught the expression of confident and smiling good nature which was so characteristic of the original. The principal inscription gives his name with the dates of his birth and death: 1828–1897. On the base there is another inscription to the effect that the memorial is the tribute of colleagues, pupils, friends, and admirers to the merits of a great man who devoted his life to the preservation of mothers and infants. All Tarnier's great qualities of goodness and sympathy, his victories over puerperal fever, and his early work for the adoption of asepsis and antisepsis in obstetrics were mentioned in moving and grateful terms in the various addresses which were delivered, the successive speakers being Professor Brouardel, M. Rebeillard, the Vice-President of the Municipal Council of Paris, the Prefect of the Seine, M. Pinard and M. Budin on behalf of the Faculty of Medicine and the Academy of Medicine, M. Mesureur on behalf of the Assistance Publique, and finally the Minister of Public Instruction on behalf of the Government.

*Prophylactic Measures in Algeria.*

The Minister of War has just decided that systematic endeavours to prevent malaria shall be made this year in the unhealthiest garrisons in Algeria. The larvæ of mosquitoes will be destroyed by the regular application of petroleum to stagnant water or by the drainage of such collections of water whenever possible. Patients suffering from malaria will be isolated in the infirmaries or hospitals in special apartments, the outlets of which will be protected by wire gauze so as to prevent the infection of mosquitoes which might subsequently propagate the disease. Persevering attempts will be made to destroy the malarial germ in the blood of patients and the men in good health will take quinine regularly as a prophylactic against inoculation by mosquitoes.

June 6th.

# BERLIN.

(FROM OUR OWN CORRESPONDENT.)

*The Micro-biology of Syphilis.*

Dr. Fritz Schaudinn, zoologist to the Imperial Health Office, and Dr. Erich Hoffmann, assistant in the University of Berlin clinic for venereal diseases, have announced in the *Deutsche Medicinische Wochenschrift* and at a meeting of the Berlin Medical Society that they have discovered a specific protozoon in primary chancre, in syphilitic papules, and in the enlarged lymphatic glands of syphilitic patients. They propose to name the newly discovered microbe spirochæte pallida. It is a delicate filiform organism varying in length from 4μ to 14μ and twisted spirally like a corkscrew, the number of turns being from six to 14. Spirochæte pallida is distinguished from all other species of that genus by the difficulty experienced in staining it and up to the present time it has been stained only with Giemsa's eosin blue solution. In eight cases of syphilis, of which a detailed account is given in the *Deutsche Medicinische Wochenschrift*, the organism was found in two patients in the inguinal glands which had been excised and in six patients in the juice obtained from the glands by puncture and aspiration. Of these cases six had a duration of only from four and a half to eight weeks and therefore had not yet developed secondary symptoms in the skin and the mucous membrane; the remaining two cases had a duration of from three to four months. Dr. Buschke has found the organism in the spleen of an infant suffering from congenital syphilis and Professor Metchnikoff of Paris has found it in apes which had been artificially inoculated with syphilis. When the subject was discussed at the meeting of the Berlin Medical Society Dr. Hoffmann reported that he had found it in every case of primary chancre and ulcerated papules; he

had also in 12 cases found it in the juice removed from specifically affected lymph glands, but it was absent in soft chancre. In the discussion Dr. Thesing said that it was very remarkable that the alleged spirochæte could be stained only by Giemsa's eosin solution and not by Romanowsky's method; he was of opinion that these organisms were in reality derived from the staining fluid which was a good culture medium for protozoa on account of the large proportion of dextrin present in it. The general tendency of the other speakers was to refrain from expressing a definite opinion.

*Cerebro-spinal Meningitis.*

At the last meeting of the Berlin Medical Society Dr. Westenhöfer read a paper on Cerebro-spinal Meningitis from a Pathological Point of View. He was a member of the commission sent by the Prussian Government to Upper Silesia for the purpose of studying the disease which has already been mentioned in these columns[1] as prevalent in that part of the empire. Dr. Westenhöfer had ample opportunity of carrying out researches on the nature of cerebro-spinal meningitis as no less than 29 post-mortem examinations were performed by him. He stated that the point of entrance of the virus was probably the nose and the naso-palatal cavity which were usually in an inflamed condition. It was remarkable that the entire lymphatic system was affected by the disease. As in childhood the lymphatic system was less resistant children were more liable to contract the disease than adults. In children suffering from affections of the lymphatic glands the disease was especially dangerous and it has been observed that if one of several children in a family had affected lymphatic glands he might contract the disease whilst the others remained in good health. In patients who had died within a few hours after the first appearance of the symptoms no affection of the meninges might be discoverable, the disease presenting only the phenomena of toxæmia. Dr. Kirschner of the Government Medical Department and president of the commission, said that the disease was less contagious than cholera and enteric fever and was not spread by contaminated milk or water but from patient to patient. The cause of the relatively small degree of contagiousness was that the meningococcus intracellularis, discovered by Professor Weichselbaum and considered to be the specific organism of the disease, was exceptionally liable to perish. On bacteriological examination of the cerebro-spinal fluid of 243 patients the meningococcus was found in 138, or 56·8 per cent.; agglutination tests were made with the blood in 420 cases and a positive reaction was obtained in 55·2 per cent. The meningococcus was found in the mucus of the nose in 23 per cent. of patients and in 9 per cent. of healthy persons in immediate contact with patients. It was very probable that the virus was spread by minute droplets of fluid as in tuberculosis, so that healthy persons should be on their guard when patients are coughing and should use prophylactic gargles.

June 6th.

## NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

*The Death-rate among Negroes from Consumption in New York City.*

A CONFERENCE called by the committee for the prevention of tuberculosis of the New York Charity Organisation Society to discuss the high death-rate from tuberculosis among negroes, the causes and effects of the disease, and the best means of combating and preventing it, was recently held in the assembly hall of the United Charities building, New York city. Dr. Andrew H. Smith was in the chair. A well-known lady, Miss Lilian Brandt, read the following statistics, showing the death-rate from consumption between the ages of 15 and 44 years for every 100,000 in 1900: Ireland, 428 per 100,000; Bohemia, 235 per 100,000; Scandinavia, 234 per 100,000; France, 221 per 100,000; Germany, 206 per 100,000; Scotland, 201 per 100,000; Canada, 200 per 100,000; United States (native born whites), 163 per 100,000; England, 151 per 100,000; Italy, 150 per 100,000; Russia, 131 per 100,000; Hungary, 113 per 100,000; and Poland 67 per 100,000. But the figures for negroes in the United States come out at 584 per 100,000. Dr. S. A. Knopf in the course of an interesting address made the following remarks: "Alcoholic intemperance will often lead to consumption. The dark rooms of the tenements are the breeding grounds of tuberculosis. Good food and proper living are excellent preventives. It can be cured, not by patent medicines, 'quacks,' faith curists, or Christian Scientists, but only by judicious use of fresh air, good food, and water baths inside and out." Dr. W. A. Brooks, a negro physician, asserted that the manner in which the negroes of New York herded together under the most insanitary conditions was mainly responsible for the prevalence of consumption among them. Motions were passed recommending that active steps should be taken to educate the negroes of New York city with regard to tuberculosis and that a committee should be appointed to coöperate with the committee on the prevention of tuberculosis of the New York Charity Organisation Society to bring about the desired results.

*Sanitation in the Panama Canal Zone.*

The *New York Sun* points out the surpassing importance of proper sanitation in the Isthmian Canal Zone. The article draws attention to the fact that the work of the canal sanitary department has been greatly hampered by red tape and officialism and states that no more competent man could have been placed at the head of the health department than Colonel Gorgas. The article ends by making an urgent plea that he may be given a free hand so that he may have the opportunity of as thoroughly cleansing the isthmus of Panama as he and his coadjutors succeeded in cleansing Havana. A New York engineer, Mr. Lindon Bates, has recently submitted to the president and Secretary Taft a new project for the building of the Panama Canal. Two of the essential features of this plan are that Lake Chagres and Lake Panama should submerge the deadly swamps around the terminal cities. According to Mr. Bates the carrying out of such a scheme must have most beneficial effects upon the health of the engineering and construction forces, and upon the residents of the cities for all time. There would be no more wading in saturated stifling jungles, there would be much less vegetation, and the mosquito as a pest could be more easily controlled.

*The Harvey Society.*

A new society, called the Harvey Society, consisting of laboratory workers in New York city, has recently been established under the patronage of the New York Academy of Medicine. Its purpose is the diffusion of scientific knowledge in selected chapters of anatomy, physiology, bacteriology, pathology, pharmacology, and physiological and pathological chemistry by the means of public lectures by men who are workers in the subjects presented. Each lecture is intended to represent the state of modern knowledge concerning the topic treated. It is hoped that through these lectures the common interests of research workers and the medical profession may be profitably cultivated. The fulfilment of the purposes of the society has been intrusted to the hands of the following committee: Graham Lusk (president), Simon Flexner (vice-president), George B. Wallace (secretary), Frederic S. Lee (treasurer), Christian A. Herter, S. J. Meltzer, and E. K. Dunham. The members of the society consist of two classes, active and associate members. Active members are laboratory workers in the medical sciences residing in New York. Associate members are such persons as may be in sympathy with the objects of the society and who reside in New York. The first course of lectures will be given on Saturday evenings during the winter of the years 1905–06 at the Academy of Medicine.

*Defective Eyesight among the School Children of New York City.*

At a recent meeting of the Society of Medical Inspectors of the New York city health department the result of the new system of physical examination of school children was discussed. Dr. John H. Cronin, chief of the division of school inspection of the department of health, read a paper in which he especially emphasised the bad sight of the school children of New York. According to Dr. Cronin the inspectors have found within the past few months that about 3 per cent. of all children in the schools have defects of vision interfering with the proper pursuit of their studies. Of these a large number have procured glasses. "This has already," says Dr. Cronin, "resulted in an improvement

[1] THE LANCET, May 20th, 1905, p. 1336.

of the school work, as borne out by the teacher's reports. The reason so many children are found backward in their studies is because there are so many with physical defects, such as defective sight and hearing, who are unable to keep up with other children of their age and who retard the progress of the class."

*Annual Statistics of the Roosevelt Hospital, New York.*

The thirty-third annual report of the Roosevelt Hospital, New York city, has recently been issued. The report is for the year ending December 31st, 1904. The number of patients under treatment for the year was 4,326, larger by 380 than in the previous year. The daily average of patients was 182. The average length of stay of each ward patient was 15½ days and of each private ward patient rather more than 19 days. The daily average of patients was 455. 10,015 cases were treated in the emergency department, while the total number of visits to this department was about 20,000. 1897 operations were performed during the year. In the ambulance service the electric motors were given up and horses were used as formerly. There were 6719 calls upon the ambulance. 67,313 visits were made to out-patients. $179,573 (£35,934) were expended for the current expenses of the hospital, a smaller sum than that expended in 1903. The contributions for the year amounted to $42,000 (£8400). The permanent fund of the hospital has been increased by $30,000 (£6000) by the endowment of six beds costing $5000 (£1000) each.

*Decrease of Cerebro-Spinal Meningitis in New York City.*

The New York city death-rate for the week ended May 13th was 19·01, as against 21·57, the rate for the previous week. With regard to deaths from cerebro-spinal meningitis there were 88 compared with 110 of the week before. The cases of pneumonia resulting in death numbered 215.

*Death of Dr. A. W. Rogers.*

Dr. Alexander W. Rogers, the oldest member of the College of Physicians and Surgeons of New York, died on May 14th at Paterson, New Jersey. Dr. Rogers was born in Armagh, Ireland, in 1814 and came when young to the United States with his father. He graduated from the College of Physicians and Surgeons in 1836.

May 30th.

## NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

*The Milk-supply of Indian Cities.*

THE dangers of impure milk are very prevalent in the large cities of India. The retail sellers admit watering the milk and the native population look upon it as a recognised custom. The water added is not necessarily the filtered or otherwise pure water of the city. The byres where the cows are kept are for the most part very limited in space, the animals are crowded together, the floors are horribly filthy, and the udders and flanks of the cows are seldom or never cleaned. The milkers are dirty in their habits, as they do not wash their hands, frequently dip their hands into the milk, and are indifferent about dirt on the udders. Add to all this the use of dirty pails and the custom of floating straw on the surface of the milk and an idea can be formed of the stuff which is distributed as milk to the great mass of the people. There are a few wholesale dealers who take precautions to insure as far as possible a wholesome supply but the above conditions are the prevalent ones. The question of the milk-supply is being discussed in Calcutta and the evils in that city are about as bad as they can be, but the proposals of the health officer afford neither an immediate nor a drastic remedy. The offer of a certificate on fulfilling certain conditions is absolutely useless, as prosecutions already fail to effect any appreciable improvement and no further proposal is suggested. The authorities seem to fear the prospect of the milch cattle being taken out of the town and are equally timid about undertaking the milk business themselves. Nothing, however, could be possibly worse than the present state of things and it is only the almost universal custom of boiling the milk which probably saves the situation.

*The late Outbreak of Small-pox in Bombay.*

A severe outbreak of small-pox in Bombay during the first quarter of the year necessitated the prosecution of numerous persons for wilfully doing things tending to the spread of the contagion. The custom of taking patients in all stages of the disease in public conveyances to the temples for special religious rites is particularly dangerous but active measures have temporarily stopped this pernicious practice. No attempt was made forcibly to remove patients to the hospital, but more than 1100 cases were admitted and it is estimated that about 2000 other cases occurred. As the mortality of the hospital cases was only 25·6 per cent., whereas the mortality of those not removed to hospital is returned at 62·8 per cent., the inference is obvious that a very large number of cases failed to come under observation because the benefit of hospital treatment can hardly be credited with such a large reduction in case mortality. The health officer asks for more hospital accommodation. In Calcutta there is no municipal hospital at all. In Bombay there are 12 horse ambulances for infectious cases, whereas I hear that there is not a single one in Calcutta. In Bombay they prosecute the owners of public conveyances for carrying infectious cases. In Calcutta infectious cases are freely moved about in the public vehicles which are more or less disinfected at those hospitals which receive infectious cases. This contrast between the methods adopted in the two cities might be extended. The provisions in Calcutta for dealing with an outbreak of infectious disease such as small-pox are of the scantiest. Even cases of plague have to be taken to the general hospitals where they are put in isolated wards, but in one hospital cholera cases and plague cases are mixed up together and in another hospital cholera cases are put in the general ward.

*The Plague Epidemic.*

The plague mortality throughout India for the week ending May 6th is returned at 52,253, a decline of 4478 from that of the previous seven days. In the Punjab, however, the mortality rose from 15,710 to 30,909. Elsewhere the decline was general. The United Provinces returned 12,909 deaths, against 28,728 in the previous week; Bengal, 2436, against 4733; Rajputana, 3358, against 2298; Bombay Districts, 1952, against 2378; Burma, 90, against 147; Central Provinces, 77, against 116; Hyderabad State, 68, against 95; Central India, 24, against 59; Mysore State, 26, against 51; and Madras Presidency, 22, against 49. The rapid decline in Rangoon is very satisfactory and it is to be noted that the authorities have been remarkably active and successful in destroying rats—some 50,000 having been secured.

May 20th.

## Obituary.

JAMES MURPHY, M.A., M.D., M.Ch. Dub., M.D. Durh.

WE regret to announce the death of Dr. James Murphy, who, although he lived in Sunderland, had associations, professional and social, over an area very much wider than that of Wearside. It is not too much to say of Dr. Murphy that he was one of the ablest surgeons of his generation, as he was one of the most genial and kindly of men. The news of his untimely death will be received by very many members of the profession with profound sorrow. The sad event occurred at Dr. Murphy's residence, 6, Thornhill-crescent, Sunderland, on Tuesday night, May 30th. The deceased gentleman was in his fifty-second year. He had been following his professional duties at the end of the previous week and as late as Friday, May 26th, he gave evidence in a compensation case at the Sunderland county court. Dr. Murphy was out driving on May 27th when he caught a cold; pneumonia supervened and death ensued with extreme rapidity.

Dr. Murphy as a surgeon particularly skilled in obstetrics and gynæcology had won a reputation that was not confined to the North of England but extended throughout the land. He was born in the year 1853, and was the son of the late William Chapman Murphy, M.D., and a nephew of the Right Hon. Justice Murphy of the Supreme Court of Ireland. He was a native of Ballinahow in the county of Tipperary, and preserved all the amiable characteristics of an Irishman throughout his life. He was educated at Trinity College, Dublin, where he was in his year honourman and prizeman in science. Subsequently he studied in Edinburgh, London, Leyden, and Paris, and entered upon his profession thoroughly equipped. He became M.B.,

M.Ch. of the University of Dublin in 1874 and was house surgeon to the late Sir William Stokes of Dublin. In 1874 he was appointed house surgeon to the Sunderland Infirmary but resigned in 1876 and settled in private practice in Sunderland. He became M.D. at Dublin in 1877, L.R.C.S., L.M. of Edinburgh in 1878, and M.D. of Durham (*ad eundem*) in the same year. In 1878, also, Dr. Murphy was appointed lecturer in botany in the College of Medicine, Newcastle-upon-Tyne. He was afterwards appointed lecturer on biology and was subsequently transferred to the chair of medical jurisprudence, which he held till his death, as well as the office of assessor in materia medica and therapeutics.

In 1890 Dr. Murphy was vice-president of the Section of Obstetrics and Gynæcology at the annual meeting of the British Medical Association in Birmingham, and in the following year, when the Association met in Bournemouth, he delivered the opening address in the discussion on Diseases of Women. In 1893, during the meeting of the Association in Newcastle he was president of the Section of Obstetrics and Gynæcology. Dr. Murphy had been for over 30 years a frequent contributor in the Sections of Surgery and Diseases of Women of the British Medical Association and had read many papers before the local medical societies. He was president of the Northumberland and Durham Medical Society for some two years, and was president also of the North of England branch of the British Medical Association and a member of the central council of the Association of which he was a most frequent attender. He was an honorary member of the Société de Médecine Pratique de Paris and also of the Deutsche Gesellschaft für Gynäkologie, Berlin. Dr. Murphy delivered the inaugural address at the Durham University College of Medicine, 1881–82.

Dr. Murphy, after he resigned the office of house surgeon at the Sunderland Infirmary, was made honorary surgeon and held the position till his death. He was an ex-vice-president of the British Gynæcological Society. He wrote a good deal and always concisely and ably, his publications including the following: "Case of Divided Uterus"; "Pilocarpine in the Treatment of Puerperal Eclampsia"; "Treatment of Placenta Prævia, with Notes of 47 Cases"; "Notes on a Case of Porro's Operation"; and various other articles on surgery and gynæcology. Dr. Murphy was a broad-minded man and physically very robust. He was devoted to yachting and was a warm and discriminating patron of the drama. He was twice married and is survived by his widow and daughter.

### HERBERT WILLIAM BROWN, M.B. LOND.

THE death of Dr. H. W. Brown from typhoid fever at Cairo on May 13th has removed one of the younger members of the profession who could ill be spared. Several resident appointments at Guy's Hospital and a year's good work at the London School of Tropical Medicine were a fitting preparation for the post of resident medical officer at Kasr-el-Aini Hospital which Dr. Brown held at the time of his death. His sound judgment, devotion to his duty, and kindliness of manner made him greatly respected and esteemed by his colleagues and his early death at the age of 27 years is regarded by them not only as a direct personal loss but also as a loss to the profession, in which he gave promise of a most brilliant career.

# Medical News.

TRINITY COLLEGE, DUBLIN.—At the examination held in Trinity Term the following candidates passed in the subjects indicated:—

*Final Examination in Surgery.*—Henry H. A. Emerson, Cecil A. Boyd, Charles R. Morris, Howard English, William F. Samuels, John Murdoch, William G. Harnett, Charles C. Williams, Thomas T. H. Robinson, Wilfred L. Myles, Henry H. White, William C. MacFetridge, Francis J. Usher, and John Chambré.

*M.Ch. degree.*—Paul Carton, M.D., and Samuel Synge (clk.), M.D.

MEDICAL MAGISTRATES.—The name of Mr. Alfred James Lowe of Home Lea, Boothstown, was on June 1st placed on the commission of the peace for the county of Lancaster.—Mr. J. Morgan Evans, L.R.C.P. Lond., M.R.C.S. Eng., of Llandrindod Wells, has been placed on the commission of the peace for the county of Radnor.

PREVENTION OF INFANTILE MORTALITY.—On June 5th a conference was held at the town hall, Pancras-road, London, N.W., under the presidency of Dr. R. M. Beaton, L.C.C., when the question of the prevention of infantile mortality by the improvement of the health of mothers and of the feeding of sucklings was discussed. A letter was read from Sir Lauder Brunton advocating pure fresh milk rather than sterilised milk as infants' food. Sir William Broadbent dwelt on the important bearing which infantile mortality had upon the physical deterioration of the race and said that the whole future of thousands of children depended upon the first few weeks of life. Dr. Herbert R. Spencer, Mrs. Scharlieb, Professor A. Macfadyen, Dr. H. R. Kenwood, and Dr. Dudfield took part in the discussion and several important resolutions were adopted affirming the desirability of the instruction and care of mothers, the early registration of births, the appointment of women inspectors, the importance of breast feeding, and the danger of premature weaning.

OPENING OF A NEW CONVALESCENT HOME AT LITTLE COMMON, BEXHILL.—On May 25th the board of management and a number of friends and supporters of the institution visited the new men's home of the Metropolitan Convalescent Institution at Little Common, about three miles from Bexhill. The buildings when complete will accommodate 118 patients but owing to lack of funds the central portion only of the building has been completed, with 71 beds for patients. When sufficient money is forthcoming an east and a west wing will be added. The buildings are fitted with the most modern sanitary and electrical appliances. The Metropolitan Convalescent Institution was founded in 1840 and now maintains four homes, containing 555 beds, to which every year nearly 7000 patients are admitted free upon discharge from hospitals or after illness at home. The address of the London office is 32, Sackville-street, Piccadilly, W.

# Parliamentary Intelligence.

## HOUSE OF COMMONS.

WEDNESDAY, MAY 31ST.

*Human Deaths from Glanders.*

Mr. CHANNING asked the President of the Board of Agriculture whether he had considered the circumstances disclosed at the inquest held on May 20th on George Charles Nichols, a horsekeeper of the Andrew Star Omnibus Company, Fulham, who was found to have died from acute glanders, and, further, the recommendation of the jury that veterinary inspectors ought to have power compulsorily to apply the mallein test to in-contact animals with a view to stamp out this disease; whether he was aware that in one London hospital no less than seven similar fatal cases to man had been diagnosed; whether he was aware that out of 16 recently purchased Australian horses in the same omnibus stud 12 had been found to have glanders; and whether, having regard to these circumstances, he would take the necessary steps to have the mallein test compulsorily applied to all in-contact animals in case of outbreaks of glanders and to provide a full veterinary inspection and the application of the mallein test in the case of horses imported from Australia or any country in which glanders was prevalent or suspected.—Mr. FELLOWES answered: I have received from the London County Council full information as to the result of its inquiries into the regrettable circumstances to which the honourable Member refers. Although it is a fact that the horses reacting to the mallein test in this case were of Australian origin it is not by any means clear that the horses were affected with glanders when imported, and it seems, on the whole, more likely that they contracted the disease since their purchase in London in January last; the desirability of amending the Glanders Order in the direction indicated is a subject which is receiving my careful consideration, but there are difficulties, both administrative and financial, in the way of the compulsory adoption of the mallein test in connexion with outbreaks of glanders which I have not so far seen my way to overcome. I am at the same time making inquiries with a view to decide whether any action can usefully be taken in the direction of controlling the importation of horses into this country. I have not before me the information referred to by the honourable Member with regard to one of the London hospitals, but the London County Council has been good enough to inform me that during the last five years 12 cases of human deaths from glanders have been brought to its notice, in six of which a connexion was traced to outbreaks of that disease in horses.

MONDAY, JUNE 5TH.

*Names Struck off the Medical and the Dental Registers.*

Mr. WEIR asked the Home Secretary whether in view of the fact that during recent years 20 names had been struck off the Medical Register for infamous conduct in a professional respect and 12 restored, whilst out of six names removed from the Dental Register for a similar cause one had been restored, he would state the nature of the offences originally preferred in the case of those whose names had been restored. Mr. AKERS-DOUGLAS said: I could hardly specify the offences without identifying the persons indicated; and, as they have been restored to the register, this would merely give unnecessary pain to individuals without serving any useful public service.

*Lunacy Return.*

Mr. CHARLES HOBHOUSE asked the Home Secretary whether the return granted in 1904 relative to the expense of lunacy was yet ready and when it would be published.—Mr. AKERS-DOUGLAS said: This return, the preparation of which has been exceptionally difficult, is now in the printer's hands and will, I hope, be published shortly.

*Physical Deterioration.*

Mr. WEIR asked the Lord Advocate whether the Secretary for Scotland had yet considered the expediency of issuing to parochial medical officers, sanitary inspectors, and inspectors of poor, leaflets containing the opinions of the Committee on Physical Deterioration relative to ventilation and the bringing up of young children with a view to the dissemination of information on these subjects.—The LORD ADVOCATE answered: The Local Government Board is taking steps to ascertain how far it is practicable to issue leaflets on the lines suggested by the honourable Member.

TUESDAY, JUNE 6TH.

*Direct Representatives on the General Medical Council.*

Mr. WEIR asked the Home Secretary whether in view of the fact that under Section 7 of the Medical Act of 1886 the representation of medical practitioners on the General Medical Council was confined to three representatives for England, one for Scotland, and one for Ireland, and that during the interval of 19 years medical practitioners had increased in number in England alone by 7000, the General Medical Council had considered the expediency of representing to the Privy Council the desirability of increasing the number of representatives of medical practitioners on the General Medical Council as provided for under Section 10, Subsection (*c*), of the Medical Act.—Mr. AKERS-DOUGLAS replied: I am informed that this question was considered by the General Medical Council last month and on no less than six other occasions during the previous 15 years, but that each time the decision of the Council has been that it is inexpedient to make any representation to the Privy Council.

## SELECT COMMITTEE ON REGISTRATION OF NURSES.

The Select Committee of the House of Commons which is considering the question of the registration of nurses heard further evidence on Tuesday, June 6th.

Lady HELEN MUNRO-FERGUSON, replying to the Chairman, Mr. H. J. TENNANT, said she was a vice-president of the Association for Promoting the State Registration of Nurses. She did not think the present condition of things was satisfactory to the employing public. The certificates issued by the various hospitals varied in value and the public were unable to distinguish between their merits. Not only the training but the examinations varied and it would be an advantage to have coördination. A certificate of the Central Board would indicate to the public that that board had satisfied itself that the holder was duly trained and had received a good character from the matron of the training school. Many hospitals kept no records and many of the nurses who wished to go to the South African Concentration Camps with the Scottish contingent could not be accepted in the absence of such records, although they were qualified. Registration would level up the country hospitals. She did not think it would be at all impossible for the poor in rural districts to secure the services of fully trained nurses. In Scotland they had many Queen's nurses, fully qualified, in the rural districts. She would be against having two classes of nurses. Cottage nurses, she pointed out, were usually certified midwives and had the status of their own register. She alluded to the proposal of a Local Government Board committee in Scotland that the poor-house nurses in the absence of a standard should have a syllabus of training and an examination at Edinburgh or Glasgow and proceeded to state the various classes of the community from which nurses were drawn. Of 143 nurses in one Scottish hospital 13 were the daughters of clergymen, 35 of professional men, 50 of tradesmen, six of clerks, 32 of farmers, and two had been in service.

By Mr. C. HOBHOUSE: She did not want cottage nurses to be employed in the belief that they were fully trained and qualified nurses, though she personally had no objection to them practising as nurses.

By Sir J. STIRLING-MAXWELL: There was an unlimited supply of applications for vacancies in the large Scottish hospitals.

Sir HENRY BURDETT, re-examined, produced figures to show that the three years' course was practically general throughout the hospitals in the United Kingdom. Referring to the proposals which he had supported and had already laid before the Committee, he said that in order to secure that the certificate issued to nurses should represent a minimum average of efficiency it was essential that the Nursing Council should supervise the examination of all nurses throughout the country. He attached great importance to the uniform curriculum of training. But he was impressed with the breakdown of the General Medical Council and they had to avoid that rock in regard to the nurses. The General Medical Council had power to send visitors and inspectors to examinations, and it did so, but in practice he understood it had not yet levelled up the examinations everywhere to its satisfaction. The step of reporting any examining body to the Privy Council had not been taken since the Medical Acts existed. He was told the reason why was that the General Medical Council was not quite sure what would happen.

Sir J. BATTY TUKE remarked that this evidence was quite irrelevant.

Continuing, the witness admitted that the average standard of examination for the medical profession was of an extremely high order and was improving but there were still blots. He wished a drawing together of everybody who had to do with the training of nurses so that they might start on a basis which would secure that from the very outset they were definitely and speedily making towards a uniform standard. That was to be obtained by the registration of training schools and the sources of supply such as existed in the colonies.

The Committee adjourned till after the Whitsuntide recess.

## BOOKS, ETC., RECEIVED.

**BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, W.C.**

A Manual of Midwifery. For Students and Practitioners. By Henry Jellett, B.A., M.D. Dub. Univ., F.R.C.P.I., L.M., Gynæcologist and Obstetric Physician to Dr. Steevens' Hospital, Dublin; Extern Examiner in Midwifery, Royal University of Ireland; Examiner in Midwifery, Royal College of Physicians, Ireland; with the assistance in Special Subjects of W. R. Dawson, M.D., F.R.C.P.I.; H. C. Drury, M.D., F.R.C.P.I.; T. G. Moorhead, M.D.; and R. J. Rowlette, M.D. University Series. Price 21s. net.

**COLLINGRIDGE, W. H. AND L., 148 and 149, Aldersgate-street, E.C.**

Chrysanthemums for Garden and Greenhouse. By D. B. Crane, F.R.H.S., F.N.A.G.A., Chairman of the Floral Committee of the National Chrysanthemum Society, and Deputy-President of the National Amateur Gardeners' Association. Edited by T. W. Sanders, F.L.S., F.R.H.S., Editor of *Amateur Gardening*. Price not stated.

**GREEN, WILLIAM, AND SONS, Edinburgh and London.**

Methods of Morbid Histology and Clinical Pathology. By I. Walker Hall, M.D., Lecturer and Demonstrator in Pathology, Victoria University of Manchester, and G. Herxheimer, M.D., Prosector to the Städtisches Krankenhaus, Wiesbaden. Price not stated.

**JOHN BALE, SONS, AND DANIELSSON, LIMITED, 83-91, Great Titchfield-street, Oxford-street, W.**

The Maintenance of Health in the Tropics. By W. J. Simpson, M.D., F.R.C.P., Professor of Hygiene, King's College, London; and Lecturer on Tropical Hygiene at the London School of Tropical Medicine. Price 2s. 6d. net.

**KARGER, S., Karlstrasse, 15, Berlin.**

Ueber Störungen des Handelns bei Gehirnkranken. Von Prof. Dr. H. Liepmann, Privatdocent an der Universität in Berlin, Assistenzarzt an der städt. Irrenanstalt in Dalldorf. Price not stated.

**LANE, JOHN, The Bodley Head, London and New York.**

The Practioner's Handbooks—I. Edited by Harry Roberts. The Rheumatic Diseases. By J. Odery Symes, M.D. Lond., D.P.H., M.R.C.S., L.R.C.P., Assistant Physician and Bacteriologist, Bristol General Hospital. Price 5s. net.

**LAURIE, T. WERNER, Clifford's Inn, Fleet-street, E.C.**

Pictures in Umbria. By Katharine S. Macquoid. With 50 original Illustrations by Thomas R. Macquoid, R.I. Price 6s. net.

**LONGMANS, GREEN, AND CO., 39, Paternoster-row, London. (For the Royal Medical and Chirurgical Society of London.)**

An Inquiry into the Phenomena Attending Death by Drowning, and the Means of Promoting Resuscitation in the Apparently Drowned. Report of a Committee appointed by the Royal Medical and Chirurgical Society. Price 5s. net.

**LONGMANS, GREEN, AND CO., 39, Paternoster-row, E.C.**

Strength and Diet. A Practical Treatise with Special Regard to the Life of Nations. By the Hon. R. Russell. Price 12s. 6d. net.

**MACMILLAN AND CO., LIMITED, London.**

Archives of the Middlesex Hospital. Vol. V. Fourth Report from the Cancer Research Laboratories. Edited for the Cancer Investigation Committee by W. S. Lazarus-Barlow, M.D., F.R.C.P., Director of the Cancer Research Laboratories; Foreign Member of the German Committee for the Investigation of Cancer; formerly Pathologist and Lecturer on Pathology at the Westminster Hospital. Price not stated.

**PEARSON, C. ARTHUR, LIMITED, Henrietta-street, W.C.**

The Preparation and Mounting of Microscopic Objects. By Thomas Davies. Edited by John Matthews, M.D., F.R.M.S., Vice-President, Quekett Microscopical Club. New edition. Price 2s.

**RUDEVAL, F. R. DE, 4, Rue Antoine Dubois, Paris.**

Les Moustiques: Histoire Naturelle et Médicale. Par Raphael Blanchard, Professeur à la Faculté de Médecine de Paris, Membre de l'Académie de Médecine. Price Fr.25.

**STEINHEIL, GEORGES, 2, Rue Casimir-Delavigne, Paris.**

Les Cardiopathies Artérielles et la Cure d'Évian. Par le Dr. P. Bergouignan, Ancien Interne en Médecine des Hôpitaux de Paris, Membre Correspondant de la Société de Thérapeutique, Médecin Consultant à Évian. Price not stated.

**STUBER, A. (C. KABITZSCH), Würzburg.**

Beiträge zur Klinik der Tuberkulose. Herausgegeben von Dr. Ludolph Brauer, a.o. Professor an der Universität Marburg, Direktor der Medizinischen Poliklinik. Band III., Heft 3, (Schluss des III. Bandes). Einzelpreis M. 3.50.

**WILLIAMS AND NORGATE, 14, Henrietta-street, Covent Garden, W.C. (Published for THE UNIVERSITY PRESS OF LIVERPOOL).**

How to Live: A Short Account, in Simple Words, of the Laws of Health, with Brief Reference to Habits and Conduct. Written for the Older Pupils in Primary Schools. By Richard Caton, M.D., F.R.C.P., J.P., Consulting Physician, Liverpool Royal Infirmary, Emeritus Professor of Physiology, University of Liverpool, Member of Liverpool Education Committee. Price 3*d*.

# Appointments.

*Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to* THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BIRMINGHAM, W. P., M.D. Dub., has been appointed Official Visitor to the Fremantle Lunatic Asylum and Claremont Hospital for the Insane West Australia.

CARDIN, H., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Stock District of the county of Essex.

CLARK, A. E., M.B., Ch.B. Glasg., has been re-appointed Surgeon to the Home and Dispensary of the Royal Infirmary, Glasgow.

CLOWES, ERNEST FRANCIS, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Charfield and Tortworth Districts by the Thornbury (Gloucestershire) Board of Guardians for three years.

DAVIES, G. H., L.R.C.P. & S. Edin., has been appointed Honorary Consulting Ophthalmic Surgeon to the Blackburn and East Lancashire Infirmary.

DEWAR, A., M.D., C.M. McGill Univ., L.S.A. Lond., has been appointed Medical Superintendent of the Royal Hamadryad Seamen's Hospital, Cardiff.

DUNCAN, A., M.D. Lond., has been appointed Physician to the Western General Dispensary.

ECCLES, W. MCADAM, M.S. Lond., F.R.C.S., has been appointed Examiner in Surgery to the Society of Apothecaries.

HEYLIGER, E. D. SCOTT, B.A., M.B., C.M. Glasg., has been appointed Honorary Ophthalmic Surgeon to the Blackburn and East Lancashire Infirmary.

JACKSON, WILLIAM R., M.D., C.M. Edin., has been appointed a District Medical Officer to the Liskeard (Cornwall) Board of Guardians.

JONES, T. HENRY, M.D. Edin., D.P.H. Cantab., has been appointed Education Medical Officer for Surrey.

KNOX, D. N., M.B., C.M. Glasg., has been re-appointed Surgeon to the Home and Dispensary of the Royal Infirmary, Glasgow.

MCVAIL, D. C., M.B. Glasg., has been re-appointed Physician to the Home and Dispensary of the Royal Infirmary, Glasgow.

MANBY, WALTER EDWARD, B.A., M.B., B.Ch. Cantab., L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer and Medical Officer to the Workhouse by the Bridport Board of Guardians.

MOLONEY, PATRICK JOSEPH, L.K.Q.C.P. Irel., has been appointed District Medical Officer, Wyndham; Quarantine Officer for the Port of Wyndham, and Public Vaccinator for the Urban, Suburban, and Rural Districts of Wyndham, West Australia.

NESS, T. M., M.D. Edin., has been appointed Honorary Physician to Margaret-street Hospital for Consumption and Diseases of the Chest, Margaret-street, Cavendish-square, W.

NEWMAN, HERBERT ROBERT CAMBRIDGE, M.B. Durh., L.R.C.P. Lond., M.R.C.S., has been appointed a Medical Officer to the Bristol Dispensary.

O'CONNOR, W., L.R.C.P., L.R.C.S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the New Ross District of the county of Wexford.

O'SULLIVAN, W. J., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Lisdoonvarna District of the county of Clare.

PATTERSON, D. WELLS, M.B., Durh., has been appointed Honorary Assistant to the Department for Diseases of the Skin in the Royal Infirmary, Newcastle-on-Tyne.

PINDER, ALAN H., M.R.C.S., L.R.C.P., has been appointed Assistant House Surgeon to the Royal Southern Hospital, Liverpool.

PREBBLE, PHILIP, M.B., M.Ch. Aberd., has been appointed Honorary Assistant Physician to the Blackburn and East Lancashire Infirmary.

ROSS, A. GARDNER, M.B. R.U.I., D.P.H., has been appointed Visiting Medical Superintendent of the City Fever Hospital, Belfast.

STALLARD, NIGEL F., M.B. Lond., has been appointed Honorary Visiting Physician to Fairlight Hall Convalescent Home, Hastings (in connexion with Margaret-street Hospital for Consumption and Diseases of the Chest, London, W.).

TAYLOR, A. WALLACE, L.D.S. R.C.S. Eng., has been appointed Honorary Dental Surgeon to the Children's Convalescent Home at Weston-super-Mare, in connexion with the Bristol Royal Hospital for Children and Women.

TEAGUE, DANIEL GILBERT MILLER, M.B., Ch.M. Edin., has been appointed Officer of Health, Wiluna, West Australia.

TEMPLE, GEORGE HENRY, M.B., C.M. Edin., has been appointed Honorary Medical Officer to the Weston-super-Mare Crèche.

TOBIN, R. P., F.R.C.S. Irel., has been appointed Consulting Surgeon to the City Hospital for Diseases of the Skin, and Honorary Surgeon to St. Vincent's Hospital, Dublin.

TRENFIELD, GEORGE HENRY, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Eighth District by the Bristol Board of Guardians.

WADE, A. M., M.A., M.D., B.Sc. Camb., has been appointed Honorary Physician to Margaret-street Hospital for Consumption and Diseases of the Chest, Margaret-street, Cavendish square, W.

WATSON, A. L., M.B., Ch.B. Glasg., has been appointed Anæsthetist to the Home and Dispensary of the Royal Infirmary, Glasgow.

WILKINS, ERIC M., M.B., Ch.B., has been appointed Accident House Surgeon at the Manchester Royal Infirmary.

# Vacancies.

*For further information regarding each vacancy reference should be made to the advertisement (see Index).*

BRADFORD UNION WORKHOUSE, &c.—Senior Resident Medical Officer. Salary £380 per annum, with residence, coal and gas, and fees.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Assistant Resident Medical Officer for three months. Honorarium of 25 guineas.

BUCKNALL, STOKE-ON-TRENT, INFECTIOUS DISEASES HOSPITAL.—Resident Assistant Medical Officer (female). Salary £100 per annum, with apartments, board, washing, and attendance.

DEVONPORT, ROYAL ALBERT HOSPITAL AND EYE INFIRMARY.—Assistant House Surgeon for six months. Salary at rate of £60 per annum, with board, lodging, and washing.

DOWNPATRICK, DOWN DISTRICT LUNATIC ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £100 per annum, with apartments, board, washing, &c.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Assistant Physician.

GORDON HOSPITAL, Vauxhall Bridge-road, S.W.—Surgeon.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—Physician.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Honorarium of £25.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Assistant Physician. Also Anæsthetist, with honorarium of 15 guineas for one year.

HULL ROYAL INFIRMARY.—Casualty House Surgeon. Salary £50 per annum, with board and lodging.

INDIAN MEDICAL SERVICE, India Office, S.W.—Examination for not less than 14 Commissions.

KETTERING AND DISTRICT GENERAL HOSPITAL.—Resident Medical Officer, unmarried. Salary £80 per annum, with board, residence, &c.

LEEDS PUBLIC DISPENSARY.—Junior Resident Medical Officer. Salary £100 per annum, with board and lodging.

LEICESTER INFIRMARY.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

LIVERPOOL HOSPITAL FOR CONSUMPTION.—Honorary Assistant Physician.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £50 per annum, with board and residence.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham-hill-road.—House Surgeon. Salary £80 per annum, with apartments and board.

MANCHESTER ROYAL INFIRMARY.—Director of the Clinical Laboratory. Salary £200 per annum.

MANCHESTER, VICTORIA UNIVERSITY.—Junior Demonstrator in Anatomy. Salary £100, rising to £150.

METROPOLITAN WATER BOARD.—Director of Water Examinations. Salary £1000 per annum.

NORFOLK AND NORWICH HOSPITAL.—Assistant House Surgeon for six months. Honorarium £20, with board, lodging, and washing.

NORWICH, JENNY LIND INFIRMARY FOR CHILDREN, Unthank-road.—Resident Medical Officer (female). Salary £50 per annum, with board, residence, and laundry.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £100, with board, residence, and washing.

ROYAL EAR HOSPITAL, Dean-street, Soho, W.—Clinical Assistants.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Senior Resident Medical Officer. Salary £100 per annum, with board, residence, and washing. Also Senior Obstetric Assistant (female). Salary £50 per annum, with board, lodging, and washing. Also Assistant Anæsthetist and Clinical Assistants (females) for six months.

RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon. Salary £90.

ST. GEORGE'S HOSPITAL, S.W.—Physician. Also Assistant Physician.

SALFORD ROYAL HOSPITAL.—Senior House Surgeon. Salary at rate of £110 per annum. Also House Physician. Salary at rate of £100 per annum. Also Junior House Surgeon. Salary at rate of £90 per annum. All for six months, with board and residence.

THROAT HOSPITAL, Golden-square, W.—Senior Clinical Assistants.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Senior Resident Medical Officer, unmarried.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Shotts, in the county of Lanark.

# Births, Marriages, and Deaths.

## BIRTHS.

BROUGHTON.—On May 30th, at Bank View, Batley, the wife of Alfred G. S. Broughton, M.B., Ch.B., of a daughter.

CRAWSHAW.—On May 28th, at Tregunter, Burnham, Somerset, the wife of Ernest John Crawshaw, M.R.C.S., L.R.C.P., of a daughter.

LLOYD.—On April 30th, at Hatting Spruit, Natal, the wife of J. Allden Lloyd, M.B. Lond., M.R.C.S., L.R.C.P. Lond., of a daughter (stillborn).

MARSHALL.—On June 3rd, at West House, Southminster, Essex, the wife of Thomas Bingham Marshall, M.R.C.S., L.R.C.P., of a son.

WADE.—On May 31st, at Harleston, Norfolk, the wife of Ernest W. Wade, M.D. T.C.D., of a daughter.

## MARRIAGES.

COLLINS—BUTLER.—On June 1st, at St. John's, Horselydown, Victor Evelyn Collins, M.B., M.R.C.S., to Hilda Oliver, daughter of the late Captain Charles Butler of Gravesend.

COTMAN—ALDRED.—On June 1st, at St. Nicholas, Great Yarmouth, by the Rev. Canon Willink, Harold H. Cotman, eldest son of the late Dr. J. S. B. Cotman, to Beatrice Ethel (Bertie), second daughter of Mr. D. A. Aldred, Great Yarmouth.

NOBLE—HULKE.—On June 1st, 1905, at St. Mary Abbots, Kensington, by the Rev. Canon Pennefather, vicar of the parish, assisted by the Rev. Arthur Armitstead, vicar of All Saints, East Finchley, Hugh Percy Noble, M.B., B.S. Lond., son of Samuel Clarke Noble, M.R.C.S. Eng., L.S.A. Lond., of Kendal, Westmorland, to Dora Backhouse, fifth daughter of the late Frederick Thomas Hulke, M.B. Lond., of Admiralty House, Deal, and of Mrs. F. T. Hulke of 162, Holland-road, Kensington.

## DEATHS.

MAY.—On June 3rd, at Queen's-road, Broadstairs, Emanuel May, M.D., M.R.C.P. Lond., in his 88th year.

MURPHY.—On May 30th, at Thornhill-crescent, Sunderland, James Murphy, M.A., M.D., aged 51 years.

RHODES.—On May 31st, at Ashby, Harrogate, George S. Rhodes, M.R.C.S., J.P., aged 77 years.

TAYLOR.—On June 3rd, at Changsha, Hunan, China, Rev. J. Hudson Taylor, M.R.C.S. (founder of the China Inland Mission), in his 74th year.

*N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Short Comments, and Answers to Correspondents.

## THE MEDICAL MAN, THE CORONER, AND THE PATHOLOGIST.

THE two letters which follow require little comment:—

122, Clapham-road, London, S.W., May 4th, 1905.

The Clerk to the London County Council.

DEAR SIR,—I shall be obliged if you will inform me at your earliest convenience the information I want to the following queries:—1. Mr. Troutbeck (after Dr. Freyberger has been sworn), addressing Dr. Freyberger, says: "You are the pathologist appointed by the London County Council?" Reply: "Yes." Is that a correct statement of fact? 2. How many inquests have been held by Mr. Troutbeck for the 12 months ending the financial year, and of these how many post-mortem examinations have been given to Dr. Freyberger? And as a corollary how many inquests have there been which entailed a £3 3s. expense—i.e., to pay for the attendance of Dr. Freyberger and the medical man called to the case? 3. Was it agreed between the London County Council and Dr. Freyberger that the fee per case for this special pathologist should be £2 2s.? I am, yours obediently,

(Dr.) W. PIERCY FOX.

LONDON COUNTY COUNCIL.

County Hall, Spring-gardens, S.W., May 31st, 1905.

SIR,—The Public Control Committee of the Council have considered your letter of May 17th, 1905, on the subject of the employment by Mr. Troutbeck, coroner, of Dr. Freyberger, one of the 18 pathologists nominated by the Council to make post-mortem examinations and to give evidence in special inquest cases.

With reference thereto I have to state that the Council is not in a position to insist that a coroner shall, when examining a witness at an inquest, conduct such examination in any particular manner, and that any complaint as to the conduct of a coroner should be addressed to the Lord Chancellor.

In reply to your request for particulars as to the inquests held by Mr. Troutbeck, I have to inform you that during the year 1904 Mr. Troutbeck held 936 inquests and engaged the services of a special pathologist (Dr. Freyberger) in 450 cases, in 168 of which additional medical witnesses were called.

With regard to the fees payable, I have to inform you that the special pathologists nominated by the Council to make post-mortem examinations and to give evidence in special inquest cases were so nominated on the understanding that the fee would be £2 2s. per case. I am, Sir, your obedient servant,

G. L. GOMME, Clerk of the Council.

Dr. W. Piercy Fox, 122, Clapham-road, S.W.

From the letter of the Clerk of the Council it would appear that Dr. Freyberger received, through Mr. Troutbeck, from the public £945 in fees during the year 1904. Frankly, we do not think his services are worth the money. We have chronicled inquests where Dr. Freyberger has been engaged when no special pathologist could, it appeared to us, be required, while we are a little at a loss to understand on what grounds Dr. Freyberger is regarded as a special pathologist, able to give the coroner assistance that could not be given to him by any practitioner. We learn from the Medical Directory that he has been "selected for London inquests," but after what ordeal and following upon what competition?

## THE COUVADE.

*To the Editors of* THE LANCET.

SIRS,—With reference to the request of your correspondent for any local traditions as to illness of the husband during the pregnancy of the wife, I met with a case of tuberculous enteritis about a year ago in Bristol which was at first neglected by the patient and his friends because, as they said, they thought he was "suffering for the missus," who was advanced in pregnancy. I have met with no other instance of the belief in Bristol. In Dahomey it is, or was, the custom for a chief to retire to bed for some weeks during the confinement and puerperium of his wife. I am, Sirs, yours faithfully,

June 6th, 1905. X.

*** The superstition is widespread.—ED. L.

## DANGEROUS HAT-PINS.

IN an annotation which appeared in THE LANCET of April 22nd last p. 1080) we stated that "it ought to be possible for an ingenious milliner to devise some less dangerous method of fixing on the hat." Our remarks having been seen by the Alexandra Agency of Argyll-place, London, W., they have sent us a specimen of their patent double-headed safety hat-pin. This pin consists of an ordinary hat-pin, except that it is somewhat longer and more flexible than some of those in use, especially by many women of the poorer class. On the blunt end of this pin is fixed a knob of about the size of a Barcelona nut and on the pointed end is a knob made to match the other knob as nearly as possible, but the knob on this end of the pin is removeable. The removeable knob has a small tube running almost through the centre and this little tube or sheath apparently contains some hardened viscous substance of the nature of gutta-percha. The pointed end of the hat-pin after adjustment through the hat is sheathed in the knob. There seems to be no difficulty—to ladies, at all events—in the sheathing process whilst the pin is in the hat on the head and the adjustable knob certainly affords protection from the dangerous point. If the removeable knob were studded with real diamonds and other stones there would be some fear felt of losing the knob in gusty weather, although we must say that we had to agitate the pin violently to shake off the knob. We think, however, that if the knob were screwed on to the pin or if some other device were employed giving a mechanical grip, it would be an improvement. We have also noticed that the great flexibility of the shaft of the pin prevents it from penetrating several folds of cloth as readily as do some of the stiffer-stemmed and cheaper pins, such as the common pins with black knobs.

## AN OLD LANCET CASE.

*To the Editors of* THE LANCET.

SIRS,—Will you permit me to thank Mr. Edward A. Piggott for his information *re* "Savigny & Co." and "Pratt," from which it is quite clear that the lancets, though not absolutely modern, were not the original occupants of the case. I am, Sirs, yours faithfully,

June 7th, 1905. PROVENANCE.

## TO DEADEN SOUND.

*To the Editors of* THE LANCET.

SIRS,—I have a patient who suffers at times from insomnia. He believes that if he could hear of some comfortable apparatus to wear at night to keep out the noise of trains, &c., it would be of great benefit to him. I should be much obliged if any of your readers could tell me of any satisfactory instrument for this purpose.

I am, Sirs, yours faithfully,

June 7th, 1905. J. S. R.

## THE ADMINISTRATION OF ETHYL CHLORIDE.

*To the Editors of* THE LANCET.

SIRS,—I should be very much obliged if any of your readers would send me notes of any cases in which the administration of ethyl chloride has proved fatal. The advantages of the anæsthetic are obviously very great. Unsatisfactory results are not always recorded in medicine. I am, Sirs, yours faithfully,

Ullswater, near Penrith. ARTHUR G. WILKINS, M.B. Vict.

## NOTES ON THE SORBONNE.

*To the Editors of* THE LANCET.

SIRS,—In your review of the pamphlet under this heading in THE LANCET of June 3rd, p. 1503, there is a slip as to the date of the founding of the College. *The Founder was born* in 1201 and *the College was founded* in 1252. Since the publication of the pamphlet Mr. Dennis Lane has joined the majority and the pamphlet, with plan of the dome, can be had (price 4d. post free) from

Yours faithfully,

Wimbledon, S.W. J. A. RANDOLPH.

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*L.R.C.P. & S. Ed.*—If the rules of the hospital do not forbid the procedure we cannot see how the medical man's conduct is to be called in question. A medical officer to a hospital, as a rule, consults with other members of the staff of the hospital, and our correspondent does not state whether this proceeding has been neglected. The circumstances are given in his letter so briefly that we are unable to make a more definite reply, but it must be remembered that customs at home and customs in the colonies are not always similar.

*Jus.*—1. The degrees of the University of Sydney are registrable in the Colonial List after compliance with certain regulations. The registered practitioner enjoys all the usual privileges. 2. The practice varies greatly at different colonial universities and in different curricula towards partly qualified students of the home universities. The registrar of the university should be asked. 3. It would be unadvisable to go to the colony in such circumstances unless a definite arrangement is made with an employer.

*R. H.*—It is not usual in this country to claim the position of a specialist on the door-plate in the way which our correspondent suggests. A man should not appear before the public as a specialist unless he has proper reasons for claiming the position, in which case his patients will be sent to him by medical men who will appreciate the value of his claim and will not want to be reminded of it by a door-plate.

*M.B.*—It is difficult in these days for a medical man in a prominent position to escape such unfortunate publicity. We do not like to make adverse comments upon such paragraphs as our correspondent has sent us unless we know that the subject of the paragraphs has inspired the information.

*X. Y. Z.*—Ozonising tubes may be obtained from almost all dealers in electrical apparatus. The best for our correspondent's purpose would probably be Andreoli's, sold by Messrs. Allen and Hanbury, 42, Wigmore-street, London, W.

*Surgeon* has opened a large question. The work done by cottage hospitals varies much in different parts of the kingdom. The question is too large a one for a brief answer and we will return to the subject.

# Medical Diary for the ensuing Week.

## OPERATIONS.

### METROPOLITAN HOSPITALS.

**MONDAY (12th).**—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Guy's (1.30 P.M.).

**TUESDAY (13th).**—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), West minster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

**WEDNESDAY (14th).**—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.) Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.).

**THURSDAY (15th).**—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.).

**FRIDAY (16th).**—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Royal Ear (10 A.M.).

**SATURDAY (17th).**—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

## SOCIETIES.

**WEDNESDAY (14th).**—DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—5.15 P.M. Meeting.

SOUTH-WEST LONDON MEDICAL SOCIETY (Bolingbroke Hospital, Wandsworth Common).—8.45 P.M. Sir R. D. Powell, Bart.: Some Clinical Lessons from the History of Medicine in the Last Half Century. (Bolingbroke Lecture.)

**SATURDAY (17th).**—SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN (Children's Hospital, Western Bank, Sheffield).—2.30 P.M. Provincial Meeting. Clinical Cases, Pathological Specimens, and Papers.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

**TUESDAY (13th).**—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. C. Thomson: Clinique. (Medical.) 5.15 P.M. Mr. W. G. Spencer: The Treatment of Diseases of the Knee-joint.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.) 5 P.M. Dr. Robinson: On Gynæcology.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Dr. F. Buzzard: Cerebro-Spinal Degeneration.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Lecture-Demonstration:—Dr. R. M. Leslie: Prognosis in Abdominal Affections.

**WEDNESDAY (14th).**—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. T. P. Legg: Clinique. (Surgical.) 5.15 P.M. Dr. S. Stephenson: Ocular Therapeutics.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.)– 5 P.M. Dr. Beddard: Practical Medicine.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Lecture:—Dr. P. Kidd: Pericarditis.

**THURSDAY (15th).**—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Dr. D. Grant: The Laryngoscopic Diagnosis of Laryngeal Disease.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Keetley: On Injuries of the Hip.

HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Lecture:—Mr. James: Dental Caries.

CHARING CROSS HOSPITAL.—4 P.M. Mr. Gibbs: Demonstration of Surgical Cases. (Post-Graduate Course.)

SAMARITAN FREE HOSPITAL FOR WOMEN (Marylebone-road, N.W.).—3 P.M. Lecture: Mr. Handley: Pelvic Tuberculosis.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Lecture:—Dr. T. N. Kelynack: Demonstration of Cases of Arrested and Advancing Pulmonary Tuberculosis. (Post-Graduate Course.)

ROYAL INSTITUTE OF PUBLIC HEALTH.—5 P.M. Mr. W. J. Dibdin: The Bacterial Treatment of Sewage.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Lecture-Demonstration:—Mr. W. Edmunds: Joint Affections in Childhood.

**FRIDAY (16th).**—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. L. Lack: Clinique. (Throat.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. R. Lloyd: On Anæsthetics.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Dr. A. Turner: Selected Cases.

## EDITORIAL NOTICES.

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*Lectures, original articles, and reports should be written on one side of the paper only*, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

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## METEOROLOGICAL READINGS.

*(Taken daily at 8.30 a.m. by Steward's Instruments.)*

THE LANCET Office, June 8th, 1905.

| Date. | Barometer reduced to Sea Level and 32° F. | Direction of Wind | Rainfall. | Solar Radiation Therm. | Maximum Temp. Shade. | Min. Temp. | Wet Bulb. | Dry Bulb. | Remarks at 8.30 A.M. |
|---|---|---|---|---|---|---|---|---|---|
| June 2 | 30·02 | S.W. | ... | 113 | 72 | 54 | 56 | 61 | Cloudy |
| ,, 3 | 30·06 | S.W. | ... | 113 | 74 | 58 | 57 | 63 | Cloudy |
| ,, 4 | 29·99 | W. | ... | 95 | 68 | 60 | 62 | 65 | Cloudy |
| ,, 5 | 29·94 | E. | 0·04 | 65 | 57 | 55 | 56 | 57 | Raining |
| ,, 6 | 29·77 | N.E. | 0·93 | 61 | 53 | 56 | 56 | 57 | Raining |
| ,, 7 | 29·76 | N.E. | 0·53 | 71 | 56 | 48 | 50 | 51 | Overcast |
| ,, 8 | 29·90 | N.E. | 0·30 | 107 | 65 | 50 | 55 | 56 | Cloudy |

**During the week marked copies of the following newspapers have been received:**—*Lincolnshire Echo, Devon and Exeter Gazette, Observer, Westminster Gazette, Globe, Nottingham Guardian, Bethnal Green News, Edinburgh Evening News, Stafford Sentinel, Broad Arrow, Surrey Comet, Reading Mercury, Daily News, Liverpool Post and Mercury, Standard, Herefordshire Mercury, Morning Leader, Freeman's Journal, Liverpool Courier, Mining Journal, National Service Journal, Local Government Chronicle, &c.*

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